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GENERAL, CHARLES, 3RD MARQUESS OF LONDONDERRY, K.C., ETC.

CHARLES WILLIAM STEWART, a distinguished soldier and diplomatist, was the son of Robert, first Marquess of Londonderry, and was born in Mary Street, Dublin, on the 18th May, 1778. His mother was Lady Frances Pratt, daughter of Charles, first Earl Camden, and Lord Chancellor of Ireland. He was educated at Eton, where, in 1791, he showed great courage and generous disregard of self in an unsuccessful attempt to save his young school friend, Lord Waldegrave, from drowning; twice he sank and as nearly as possible lost his own life.

According to Alison, he entered the Army on the 3rd April, 1791, as Ensign in the late 108th Regiment, became Lieutenant on the 8th April, 1793, and got his company in it on the 7th August, 1794. These dates, however, are not borne out by the Army List, and indeed there was no such regiment in existence at that time. It is more probable that he received his first commission in the regiment on the 11th October, 1794, his Lieutenantancy on the 30th October, 1794, and became Captain on the 12th November, 1794. His first experience of active service was in the capacity of D.A.Q.M.G., in Lord Moira's expedition for the assistance of the Duke of York in Flanders in 1794. When this force was driven out of the Low Countries he was attached to Colonel Charles Craufurd's mission to the Austrian Army, which was actively engaged in 1795 and 1796. In this campaign he received his first wound at the action of Donauwerth, when he was struck by a musket ball in the left eye, while bravely charging a detachment of French hussars at the head of some Austrian heavy cavalry.

On his return home he was appointed aide-de-camp to his relative Lord Camden, then Lord-Lieutenant of Ireland. He had succeeded, on the 31st July, 1795, to a majority in the late 106th Foot; and on the 1st January, 1797, at the early age of eighteen, was appointed Lieut.-Colonel of the 5th Royal Irish Dragoons, at that time, according to General Robert Dundas, "the worst of all possible bad regiments." By Lieut.-Colonel Stewart's exertions the discipline and efficiency were improved to such an extent, that the General, in writing to him, was forced to admit that had he remained in command of it the regiment would have become "the best regiment of cavalry in this country." But during the

Irish Rebellion of 1798, its insubordination and the discovery of a conspiracy in its ranks resulted in extreme measures, for the 5th Dragoons was disbanded and removed from the Army by General Order of 8th April, 1799. Lieut.-Colonel Stewart's efforts were, however, fully acknowledged, for he was, four days later, appointed to the Lieut.-Colonelcy of the 18th Light Dragoons, at that time a skeleton, but which afterwards, under his able direction, became one of the most distinguished cavalry regiments in the Service. In command of two squadrons of that regiment he served in the expedition to Holland in 1799, and was highly distinguished in the battle of Bergen. He was frequently under fire on outpost duty during the campaign, and was twice wounded on the 10th October. He was not again engaged on active service till the Peninsular War broke out. On the 25th September, 1803, he was appointed aide-de-camp to George III. and Colonel in the Army, and for a short time occupied the position of Under Secretary of State for War.

As Brigadier-General he commanded a Brigade of Hussars, under Sir John Moore, in Portugal, in 1808-9. On the advance into Spain he covered the march of Sir John Hope's division, during which he surprised a French post at Rueda, and took the whole escort of a valuable convoy of cotton. On the retreat of Sir John Moore's army to Corunna he was entrusted with the important duty of covering the rear. He showed much personal bravery in the brilliant cavalry actions of Sahagun, and Benevente where he routed the cavalry of the Imperial Guard. For these services he was repeatedly praised by Sir John Moore, who sent him home in January, 1809, to report on the progress of events.

A few months later he returned to the Peninsula, in the important position of Adjutant-General to the army under Wellington, an office which he held until May, 1813. In this capacity he distinguished himself during the pursuit of Soult's army across the Douro, by leading several brilliant charges against the enemy's rear guard, for which he was specially mentioned by the Duke of Wellington. He was with the advance guard at the defeat of Soult's rear guard at Salamonde, and was again commended for his brilliant services on the 27th and 28th July at Talavera. For his repeated exertions, and especially for his services at Talavera, Brigadier-General Stewart, at the age of thirty-one, received in person the thanks of the House of Commons on the 2nd February, 1810, and was promoted to the rank of Major-General on the 25th July, 1810.

Space will not admit of following in detail the further service which he rendered in the Peninsula as the Duke of Wellington's Adjutant-General. He returned to the seat of war in the spring of 1810, and played a distinguished part in the Duke's defeat of Massena at Busaco, and also at Fuentes D'Onor, the siege and assault of Badajos, the action at El Bodon, and the siege and capture of Ciudad Rodrigo. In February, 1812, he was invalided home, and received from his Sovereign the Grand Cross of the Bath.

He was shortly afterwards appointed to an important military and diplomatic situation at the Court of Prussia as Envoy Extraordinary and

Minister Plenipotentiary. During the summer of 1813 he was appointed Military Commissioner to the Allies, and in that capacity played a distinguished part in the campaigns of 1813-14. He was present at Napoleon's defeat of the Allies at Lützen, he was at Bautzen and Wurschen, the combat at Haynau, the investment and capture of Dresden—on one occasion being one of the first of the storming party to enter the great redoubt, the battles of Culm (where he was severely wounded in the thigh), Mockern, the storming of Leipsic, battle of La Rothière, Arcis-sur-Aube, the combat of Fère-Champenoise, the battle and capture of Paris. For these important diplomatic and military services he received Swedish, Russian, and Prussian decorations. For many years subsequently he represented Great Britain as Ambassador at Vienna.

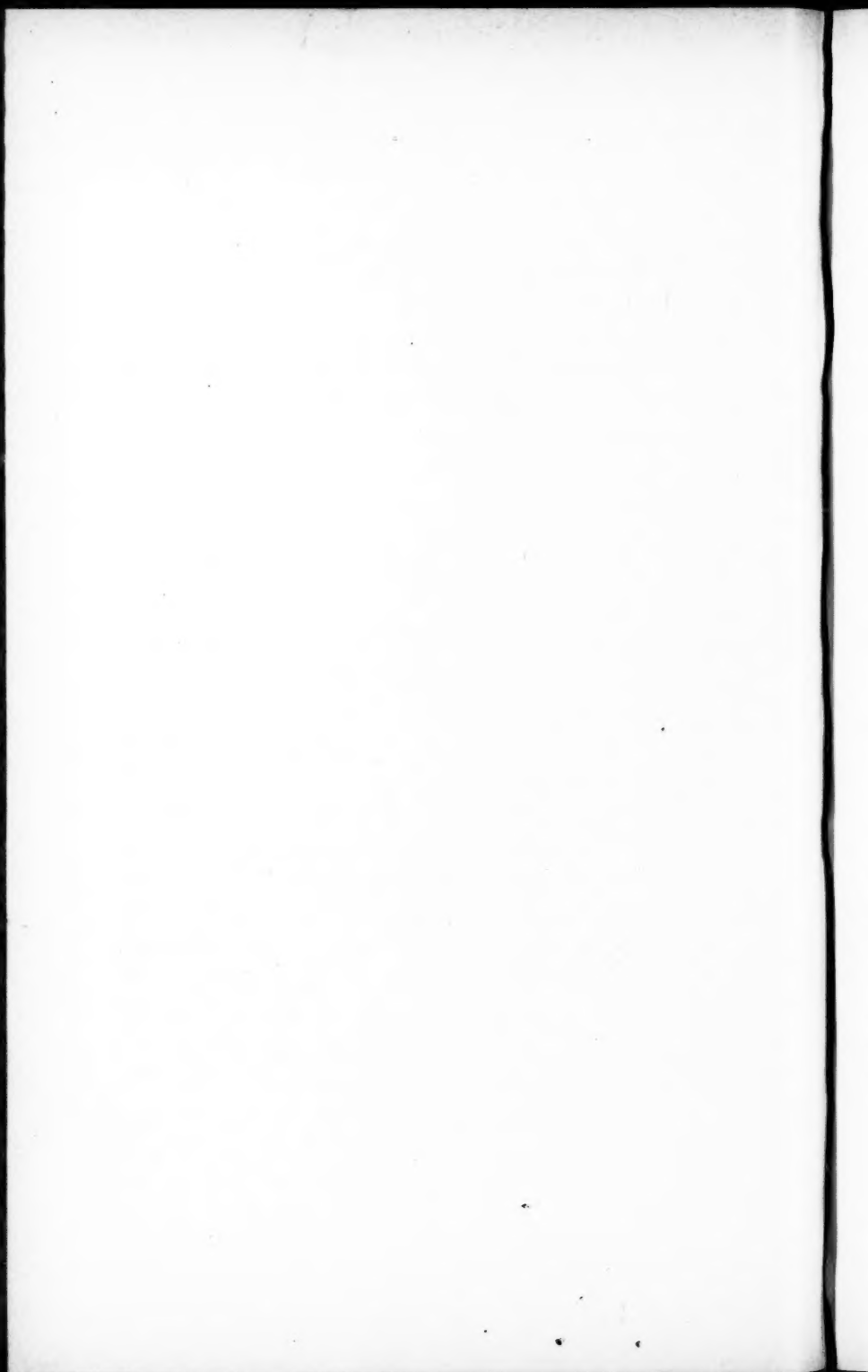
On the 4th June, 1814, he was promoted to the rank of Lieut.-General, and a month later was elevated to the peerage as Baron Stewart. The same year he was sworn a Privy Councillor. On the 3rd February, 1820, he was appointed Colonel of the 10th Light Dragoons, and when holding that appointment fought a duel with a cornet of the regiment. In 1822 he succeeded to the Marquisate of Londonderry. He became General on the 10th January, 1837, Colonel of the 2nd Life Guards on the 21st June, 1843, and in 1852 was created a K.G., succeeding to the Garter vacant by the death of the Duke of Wellington. He had received the Peninsular Gold Medal, the Gold Cross with one clasp, and the Peninsular War Medal with five clasps, in addition to the Grand Cross of the Bath, and the Grand Cross of Hanover.

The Marquess of Londonderry on several occasions came forward as an author. In 1805 he published "Suggestions for the Improvement of the Force of the British Empire," in 1828 "A Narrative of the Peninsular War," and afterwards the "Correspondence of Robert, Marquess of Londonderry."

That Lord Londonderry was a soldier of distinguished ability, is clear from his services in the Peninsula, first as a Cavalry Brigadier, and subsequently as right-hand man to the Great Duke. The importance of these services has, unfortunately, been too much shrouded from the general eye in the blaze of Wellington's glory. His duties with Bernadotte in the campaign of 1813 and with the allied sovereigns in that of 1814 were not less diplomatic than military, while in his subsequent position as Ambassador at Vienna he upheld with firmness and tact the honour of his country.

On the 6th March, 1854, he died at Holderness House, Park Lane, aged seventy-six, and was buried at Long Newton.

R. H.



Friday, June 14th, 1895.

Captain Sir JOHN COLOMB, K.C.M.G., late R.M.A., in the Chair.

SUGGESTED LINES OF CONVOY IN WAR TIME, WITH A SCHEME OF COMMERCE PROTECTION.

By *Lieut. W. C. CRUTCHLEY, R.N.R.,*
AND
H. L. SWINBURNE, Esq.

SUGGESTED LINES OF CONVOY IN WAR TIME.

Lieut. W. C. CRUTCHLEY, R.N.R.

IN bringing forward before this audience the subject with which I am about to deal, I may premise my remarks by saying that I do not for one moment suppose that this subject—of the very highest importance as it is—has not received attention at the hands of the proper authorities. Speaking, however, as a shipmaster, I can confidently affirm that there is not a merchant vessel afloat whose master knows even of what nature is the scheme which has been formulated for the protection of his trade. Is he to travel in convoy, or is he to travel over prescribed routes, the safety of which will be secured by patrol, or has some other method been adopted by which his safety is to be secured? Again, is he to trust entirely to the war-ship for protection, or is he going to be asked to assist in protecting himself? If this latter, surely he should be told what he will be expected to do, and in what way and by what means he will have to do it. We see figuring in our Navy List a long string of vessels bearing the imposing, if somewhat long-winded, title of "Royal Naval Reserved Merchant Cruisers." Will anyone venture to assert that the gentlemen who command these vessels, or the owners to whom they belong, have any accurate idea of what their ships will be called upon to do when the demand for their utilisation arises? It may be urged that no plan of action can be formulated unless we just know who our enemy is. But that argument is fallacious. No single naval Power can harm us. But a combination of naval Powers might. Only one such combination is within the bounds of probability, and we all know what that combination is, and how powerful it would be. Consequently, it is necessary only for us to formulate such plan of action as will cover the contingency of our having to meet in hostilities a Franco-Russian alliance; it will then cover any eventuality that can possibly arise.

Before proceeding further, I would here like to touch briefly on a question which, though not an integral part of the subject with which I

am dealing, is one that is so closely connected with it that it demands reference. I refer to the question of insurance. It is my belief that under war conditions our trade will have to be carried on under a national guarantee, and my reasons for this belief are these. Our trade *must* be encouraged by Government, for if it is allowed to be hampered we shall be playing the enemy's game for him. Not only our food, but the raw material that supplies our industries *must* come into the country, as serious cessation of trade will injure our fighting power. Finally, if victorious, it is not we who will have to pay the bill. That will be met by the war indemnity that we should exact from our vanquished enemy. If defeated, "the subsequent proceedings will interest us no more," and the sum total for which we shall be bankrupt will only be slightly the greater. I allude to this question because, with a system of national insurance the control of trade under convoy will be rendered a much easier matter. In the old days there was always great complaint of the disobedience and bad behaviour of the masters of merchantmen sailing in convoy, and it is impossible not to believe that such complaint was well founded. Merchant skippers undoubtedly did not obey orders and carry out their instructions properly. Those who commanded fast sailing ships grew impatient at having to regulate their pace by that of the slowest sailing vessel, and frequently seized an opportunity to part company and trust for safety to their own heels. The slow sailers, on the other hand, knowing that their speed regulated that of the others, frequently took no pains to carry canvas as they should have done, and the consequence was that a very great deal of unnecessary friction was created, the task of the war-ships was made one of increased difficulty, stragglers were cut off by privateers, and heavy loss was entailed on the underwriters who had insured them. Now, if a system of national insurance were in vogue, this state of things would no longer be permitted, as it would be a condition that disobedience of orders would invalidate the contract. The disobedience of the shipmaster would be the loss of the shipowner, and the latter would most certainly convince the former of the absolute necessity of strict obedience to all orders issued from the officer in charge of the convoy. My excuse, then, for digressing to this topic is that if national insurance is to a greater or lesser extent adopted, it will probably render the system of convoy one best suited for, at any rate, the protection of our slow steam trade.

Assuming, then, that convoy will be required for the protection of some, at any rate, of our trade, I will divide our merchant ships into two classes: the fast steam trade, *i.e.*, with a sea-speed of 14 knots and upwards, and the slow steam trade, with a speed of less than 14 knots. Taking just the former, I am of opinion that convoy is not necessary for its protection. For it is evident that a fast ship can easily, and without unduly increasing mileage run, take, when in the open sea, such a diversified route as will ensure to her comparative safety, until such time as she converges into what must necessarily be the common track of ships, *i.e.*, on leaving her port of departure or approaching her port of destination. At these points she must expect to find safety. Take our home ports for

instance. If we kept clear of the enemy a radius of 60 miles from the Lizard, and a similar distance from the Smalls, we should keep open the entrances to the English, Bristol and Irish Channels. It would, moreover, be necessary to close with torpedo-boats the entrance to the latter between Cantire and Rathlin Island. If this were effectually done, then our trade could continue, even though our Eastern ports were suffering from a scarcity of shipping. Similarly, other localities would have to be protected, so that approach to our principal and foreign ports would be rendered as secure as possible. It is, moreover, essential that it should be well and widely known to all the ships in our fast steam trade where protection is to be found under the guns of a British war-ship. Here I may point out that there must be no mistake about the meaning of a sea-speed of 14 knots. It must be an average sea-speed, and a list of such vessels as have this sea-speed would be prepared whose performances at sea are taken from their own log-books. Many of these vessels are already subsidised, and their performances well known, and, at the risk of reiteration, I will again say that they should be placed in such a condition as would enable them to sink a similar enemy with an improvised armament.

Turning to the slow steam trade, we must seek a method for its protection by a system of strict convoy. It would be impossible for me within reasonable limits of length to deal with more than one, our principal, trade route. I will, therefore, confine myself to a consideration of the trade which finds its way past the two great Southern Capes, either coming into the Atlantic Ocean on its way to Great Britain, or requiring to be seen safely on its way down South. It is apparently the opinion of many of our leading naval experts that in the event of war arising between Great Britain and France, our route to the East through the Suez Canal would not be practicable for our commerce. They think that in view of the comparatively restricted line of this particular trade route, and the possession by France of so many effective points on the north coast of Africa, our ships would be exposed to such attack by torpedo-boats or otherwise all along the line in such a manner as to render the route entirely impracticable, at any rate until we had gained and held an absolute command of the sea. In the meantime our trade has to continue—we cannot afford to stop it, or even to have it materially checked; and it will, therefore, be necessary to devise means by which it may be diverted to such routes as we can effectively control. At the most we can only hope that the Suez Canal will be kept open for the transit of our war-ships, though this question will doubtless be largely influenced by the result of the first great naval battle, and it is, therefore, necessary only to consider the alternative route. In years to come the opening of the Panama Canal or Nicaraguan Water-way may put a very different complexion on this problem, but at present the consideration before us is the fact that 75 per cent., or more probably all, of the trade now passing through the Suez Canal will have to be diverted to the Cape of Good Hope or Cape Horn routes. Without going into detail with regard to figures, I will work on the assumption that seven vessels each day pass through the Suez Canal either way, and this cannot be considered an

excessive estimate, when we consider that it represents our traffic with China and the Eastern Seas, India, Australasia, and the East Coast of Africa. With the Canal once blocked by accident or otherwise, unless immediate steps were taken ships would run up the Red Sea and probably remain there for some considerable time with empty bunkers—in safety, perhaps, for doubtless we could hold the entrance, but none the less to all intents and purposes absolutely useless for our requirements. It must be borne in mind that vessels nowadays cut their bunker capacity to its very lowest limit, and that a margin of two days' coal is generally considered an ample allowance with which to reach a port. It is then permissible, perhaps, to ask what arrangements have been made for the diversion of this enormous traffic on the outbreak of a great war. To the audience I am now addressing it is unnecessary to point out what even seven vessels a day collecting in any roadstead means.

Assuming, then, that the route will be changed, the most vital point will be the question of coal. Even then many vessels at the commencement of the war will be stuck up in the Red Sea for want of this essential, as many vessels will have left port before the declaration of war, and will not have in their bunkers a sufficient supply to take them to the Cape of Good Hope. These will, doubtless, in course of time be relieved by steam colliers from Australia, whose collieries will receive an enormous impulse from this state of affairs. When, however, we turn to Table Bay itself, it is not easy to feel comfortable in this matter. The coal-fields in the Cape Colony are not in a state of what may be considered as forward development. Their working—if I may be allowed to use a sporting metaphor—may be best described as of an amateur nature, though undoubtedly they will develop into experienced professionals in the course of time. Natal is also busily engaged in developing her coal industries, although her plant and resources are still limited. Even, however, with her aid, I doubt if South Africa would be equal to meeting the demands that would be made on her. For this demand will amount to asking her to successfully coal half our trade. Moreover, we must not lose sight of the fact that if the Canal is closed to us, it is very probable it will be closed to neutral ships as well, and although we shall, of course, look after ourselves first, still, if foreign vessels belonging to a friendly or perhaps even an allied Power wanted coal in Table Bay, it would look bad if we did not give them somewhat of that which we possessed, the more especially as they would be willing to pay, and pay well for it. Undoubtedly, a long war will develop the resources of the Cape in a manner that nothing else would do, but the fact remains that at present the greater part of the coal supplied to vessels in Table Bay is exported from Great Britain, and this supply would probably cease on the outbreak of war.

Turning to our Australasian Colonies, we find that the coal-fields of Australia and New Zealand are practically inexhaustible, and the facilities for shipping coal at all the large Australian ports are also very

complete. With regard to this latter point, this is not so to the same extent in New Zealand as it is in Australia; but, even so, much can be done by that country. It is true that large vessels, as we understand them, could not enter the West Coast coaling ports of New Zealand, but they could be loaded from smaller ports at a suitable place in the locality, say, one of the many bays to the southward of Cape Farewell. I believe, therefore, that a very large trade in coal, carried in sailing ships, will spring up between Australasia and the Falkland Islands and Table Bay, and that it is feasible I have little doubt, and for these reasons:--If we assume that the main strength of the enemy will be kept in those European waters where the decisive battles must be fought, they should not be able to come into those waters on the other side of the world in a strength greater than our fleets on the foreign stations could cope with. Moreover, I also assume that the entrances to our far-distant ports will be kept secured, as I have already outlined with regard to home waters. This being the case, our sailing colliers would be safe over the guarded Australian waters until they reached the westerly winds, from whence there is a fair probability that they would reach in safety the equally secure waters in the vicinity of Table Bay or the Falklands, according to which was their destination. I say this advisedly, for the weather down South is not such as to encourage much raiding attack in that vicinity, and the despatch of one of our own mail steamers along that route in a leisurely manner would doubtless meet all the requirements for defence that would be necessary. St. Helena and Ascension could be supplied by vessels towed from Table Bay in company of convoy, even though they should be abandoned, or anchored for good, on their arrival at those ports.

I think I am right in saying that this work will provide occupation for a great number of our finest sailing ships. Arrived in Table Bay, they would there discharge, be towed, if necessary, to Cape Point, and then again run down their easting to Australia in ballast, with again a reasonable prospect of their doing so in safety. As regards these sailing colliers, I take it that the passage could be made from Australia to the Falklands in twenty-five days, from New Zealand in five days less, although this estimate is perhaps a rather favourable one. Forty-five days also may be taken as an average passage from Australia to the Cape of Good Hope, as large iron sailing ships do very good work indeed in the westerly winds. Neutral sailing ships also would be, doubtless, glad to embark on such a trade, covering their risk by insurance, as the profits would be large. In this connection, I would here like to ask a question of those versed in international law. Assuming we were at war with France, and some hundreds of miles to the westward of either the Capes a French war-ship overhauled a German sailing ship carrying coal and bound for one of our ports, what would happen? Coal is contraband of war. Would its possession by a neutral secure it exemption from forfeiture or capture? By this I mean, what would happen in practice—not theory? Coal is supposed to be contraband of war, but is a coal cargo liable to seizure if war is being waged? If not, where is the line

drawn? And if coal belongs to a neutral, it is scarcely within the power of an enemy to blockade *our* ports, and so render it liable to seizure.

Turning to another important coaling point on this route, we find that the geographical position of Sierra Leone is such that it would not be possible to supplement its coal supplies in this fashion. Fortunately, however, it is not at such a distance from us as to preclude the use of steam colliers, and its importance is easily recognised when we realise that it is the only coaling port of any size which we possess to the southward of Gibraltar. Madeira, Cape Verde, and the Canaries might perhaps be used on occasion, but it would certainly be unsafe to rely on them absolutely in war time; in fact, it would, in all probability be better to improvise a coaling station in Arguin Bay. Any interference with it, it would be possible to check by a small display of force, and such a station might be of extreme value to us. Generally speaking, Sierra Leone would supply the wants of the Merchant vessels, while we could rely on St. Helena, Ascension, and the temporary station inside Cape Blanco to meet the coal requirements of war-ships with small coal endurance.

On the western side of the South Atlantic we have but one coaling station, the Falkland Islands, and, considered as a harbour for steamers, it would be difficult to find a place more suitable for our use. Here there might be a dozen different coaling depôts established; and though it is true that the harbours are not protected, they could easily be defended by submarine mines, and they will at any rate be well taken care of by sea. This depôt can, as I have already shown, be supplied with coal by sail from Australia or New Zealand, or by steam from the west coast of South America, through Magellan Straits. The quantity that is wanted at the Falklands would of course be governed by the consideration of how far our Merchant steamers would be permitted to coal at the neutral ports of Buenos Ayres, Rio, and Bahia or Pernambuco; and we must not lose sight of the fact that those ports are principally supplied with coal by British sailing vessels, a trade the interruption of which will have to be reckoned with. Taking this into consideration, it would appear as though preparation must be made for doing the great bulk of coaling required at the Falkland Islands. Port Stanley is, it is true, small, but Falkland Sound is in reality one great harbour, and there are plenty of nooks and corners where coaling can be carried on with very little difficulty. Arrangements would of course have to be made for the towage of sailing vessels, as the tides run strong almost everywhere in the vicinity. I am assuming therefore that on this route we have only two secure coaling stations, Sierra Leone and the Falklands, and that our plans must be laid accordingly; but at the same time I would like to point out that there are a number of places on the east coast of South America where coaling could be carried on by preconcerted arrangements, and it may perhaps even be that neutral ports will permit of our war-ships laying-in a limited amount of coal on emergency.

In conclusion, I would briefly summarise the course that our trade on these routes would take. Keeping 40 miles clear of Ushant and about 80 of Finisterre, they would shape a course for the Canaries, either outside or

through the islands. This would take them down a line within a radius of about 400 miles from Gibraltar, and, consequently, ships with a limited coal endurance, say, from 1,200 to 1,400 knots, would, with that port as a base, be able to pick up the convoy and see it well on its way to the Canaries. Precautions would, however, have to be taken between the Canaries and Sierra Leone, as there would be great danger from torpedo attack. It would therefore be a great advantage to us to hold Cape Blanco and Arguin Bay. (It is unnecessary to discuss Goree and its possibilities.) At Sierra Leone, the convoy would break up, and those vessels for the Cape would proceed under guard of vessels, some of which will have Ascension and St. Helena as their coal bases, as far as 20° S., where the Cape ships would meet and take them into Table Bay. With Madagascar in French possession, to see our Eastern trade still further under convoy is a contingency that we may some day be called on to face. From Sierra Leone the Western trade would form convoy to Pernambuco and thence south to the Falklands, picking up and dropping ships at Rio and River Plate, at which places station ships would be placed to look after marauders in their vicinity. Fast ships would be necessary to keep the patrols and coaling bases in touch, and for this purpose large, fast Mail steamers of high coal endurance would be of the utmost service. Moreover, I would suggest that certain of our best 13 to 14-knot steamers should be armed, and in each convoy one of these should be associated with ten others, such eleven ships to constitute a single unit, I do not think that any scheme of commerce protection can be complete which does not include the assistance of our Mail steamers. At the present time we are as badly off as ever we were on the subject of signalling and communication between them and men-of-war, and that fact alone is sufficient to justify me in having again touched upon this most important subject.

A scheme for a convoy of war-ships has, however, been worked out in detail by Mr. Swinburne, and he will now give you his ideas on this subject.

A SCHEME OF COMMERCE PROTECTION.

H. L. SWINBURNE, Esq.

ANY scheme of commerce protection must, it is evident, be dependent on:—

1. The nature of attack that has to be met.
2. The extent of water area that has to be protected. And
3. The amount of naval force that can be exclusively devoted to the purpose.

And in drawing up the scheme I am about to bring before you, each and all of these points—and more especially the latter—have, I hope, received careful attention.

With regard to the first, the point is one that is easily determined. We may, I take it, assume that we are masters of the sea, or, at any rate, intend to assume that rôle on the outbreak of war, whether it be against a single naval power, or a combination of such. Our fleet's first duty will be to hold the main force of the enemy so tied up in its own ports, that it cannot emerge without its being at once brought to action. This being the case, the only attack that can be brought against our trade is that leakage of force, if I may be allowed to use the expression, which, in these days of steam, no blockade can prevent. This leakage must, in the nature of things, be cruiser force. The enemy would not weaken his squadrons by detaching battle-ships, nor would they have the coal endurance for it, and if they did succeed in evading the blockade, the blockaders would at once know it, and detach a corresponding strength after them. Cruiser attack, then, is all that we need fear on our commerce, though, with the giant cruisers now building, such attack can be of a pretty formidable character.

With regard to the second point, viz, the extent of water area to be protected, the geographical conditions of our empire are such that this also is easily ascertainable. Our trade goes out from and comes in to us on four main routes. East, through the Straits of Gibraltar and the Suez Canal. West, across the Atlantic to the northern half of the American continent. South-West, to the southern half of the same continent. South, to African waters, and round the Cape of Good Hope. If the Mediterranean be closed to our slow steam trade—and here I would beg to point out that this is the only trade I am now considering—all trade taking the main route must be diverted to that round the Cape of Good Hope, and this, I take it, will be the case for two reasons. Firstly, because we shall strain every nerve to hold the command of that sea for military purposes, and our war-ships will have enough work on their hands without being hampered by the necessity for affording protection to slow steam trade, the more especially as the alternative route is open to it. Secondly, because of the liability of the canal to blockage, either by design or accident. This being the case,

it is evident that a quadrilateral, bounded on the North by the 60th parallel of latitude; on the South, by a line drawn from the Cape of Good Hope to Cape Horn; on the East, by the coasts of Europe and Africa; and on the West, by the coast of the American continent, includes every trade route which requires special protection. Outside that quadrilateral our trade routes are far distant from any enemy's base, and our force in those waters—strengthened as occasion may require—should be sufficient for their protection.

We now come to the third and most important point of all, and ask the question, "What is the amount of naval force that we can devote exclusively to the purpose of commerce protection?" The answer is plain. "Just as much force as we can spare without reducing the remainder of our Navy to a strength at which it would not be powerful enough to hold supreme command of the sea." This naturally leads to another question. "Are we in a position to do this? Can we adequately protect our commerce, and yet leave our fighting force so complete that it can hold its own, and keep England still the mistress of the sea?" The answer, I hope to convince you, is in the affirmative, and that, without materially weakening the main force of our Navy, we can, by a combined system of patrol and convoy, adequately protect this quadrilateral from any raiding attack that can do our trade serious damage.

There exists already within this quadrilateral, and outside of home waters, three squadrons—those on the Cape, North American, and South American stations. This force consists in effective ships of a strength of twenty-six vessels, comprising one coast-defence ship; two first class cruisers; one second class cruiser; nine modern and fast, and three older and slower third class cruisers; five sloops; and five first class gun-boats. This force, would, of course, be inadequate for the purpose, but a force of one hundred and four ships would be sufficient, and such a force could be withdrawn from our Navy and devoted exclusively to safeguarding our trade, without to any serious degree weakening our fighting-line, or denuding our naval stations outside of the quadrilateral. If we divide war-ships into classes, and group them as:—

- A. Armoured ships and first class cruisers.
- B. Second class cruisers.
- C. Third class cruisers (over 15 knots).
- D. Third class cruisers (under 15 knots), sloops, and gun-vessels—

we would find that we have already on the quadrilateral:—

	A ships.	B ships.	C ships.	D ships.	Total.
On Cape station ..	2	..	5	5	12
On N. American station	1	..	3	6	10
On S. American station	..	1	1	2	4
	3	1	9	13	26
If to this we add ..	27	24	8	19	78
	30	25	17	32	104

we have complete a force of 104 ships, and I will now endeavour to show how this can be done without weakening our fighting line or reducing our stations outside the quadrilateral. We have to provide altogether seventy-eight ships; twenty-seven *A*, twenty-four *B*, eight *C*, and nineteen *D*. Now it is evident that the withdrawal of nineteen gun-vessels, sloops, and old-type cruisers of the "*Comus*" and "*Heroine*" types is in no sense a weakening of our fighting line, and, therefore, it will be necessary to here take into consideration only the *A*, *B*, and *C* ships. Commencing with the former, let us see what our total fighting strength in all armour-clads and first class cruisers is.

If we turn to the Navy List we find that, after deducting the first class cruiser on the North American station, and the first class cruiser and coast-defence ship on the Cape station, we have to-day afloat or building ninety-eight *A* ships:—

	Total force.	Required by scheme.	Force left.
Battle-ships, first class ..	29	<i>Nil</i>	29
Battle-ships, second class ..	12	3	9
Battle-ships, third class ..	11	8	3
Armoured-cruisers, first class	16	13	3
Cruisers, first class	15	2	13
Coast-defence ships	15	1	14
	98	27	71

Now, to withdraw from the most powerful portion of our fighting line nearly one-third of its strength, numerically, seems rather a big order; but those to whom I am addressing myself know well that about a third of this force has but little or no fighting value. We have battle-ships which are neither armed nor armoured to fit them for the line of battle, and we have armoured-cruisers from which a 14-knot merchant ship would walk away with ease. And yet these ships could do good work in protecting trade convoy against attack from any but very powerful cruisers, and it is in a great measure these ships that I would take for my purpose. The first class battle-ships remain, of course, intact, and from the second class I would only take three ships, the "*Téméraire*," "*Alexandra*," and "*Superb*." Of the third class battle-ships I leave in the fighting line the three most powerful, and take for my purpose the "*Sultan*," "*Hercules*," "*Bellerophon*," and the five ships of the "*Audacious*" class. Everyone of these are slow, thinly-armoured, and, with the exception of the "*Bellerophon*," obsolete in main armament. To these I add from our coast-defence ships one vessel, the "*Belleisle*." I thus remove from our battle-ship strength only three ships which can claim a moderate value, viz., the "*Téméraire*," "*Alexandra*," and "*Superb*," and three less powerful vessels, the "*Sultan*," "*Hercules*," and "*Bellerophon*." On our cruiser strength I make a larger draft, as I take from it fifteen vessels. Six of these, the "*Achilles*," "*Nelson*," "*Northampton*," "*Agincourt*," "*Northumberland*," and "*Shannon*," have, however, no fighting value as cruisers. The remaining nine are

useful ships. They are the armoured-cruisers "Aurora," "Australia," "Galatea," "Narcissus," "Immortalité," "Impérieuse," and "Warspite," powerful, if under modern conditions somewhat slow, ships; and the two fast and powerful protected-cruisers, the "Blake" and "Gibraltar."

Turning to *B* ships I find that we have, or will soon have, fifty-one ships, not taking into account the second class cruiser on the S. American station, and the old-type vessels "Inconstant," "Raleigh," "Boadicea," "Active," and "Volage." On this class we make a somewhat heavy demand, for we take from it no less than twenty-four ships, of which, however, only fourteen are essentially modern, *i.e.*, have speeds of 19-20 knots, full deck-protection, and a Q.F. armament. These fourteen we would take from the "Apollo" class, all modern, fast, and powerful ships. Our remaining ten would comprise the unprotected sisters "Iris" and "Mercury," the partially protected ships "Amphion," "Arethusa," "Leander," and "Phaeton," and the first fully deck-protected ships we ever built—the "Thames," "Severn," "Forth," and "Mersey." None of these have a Q.F. armament, and all, as speeds go nowadays, are slow.

Finally, in *C* ships our whole available force of third class cruisers, with a speed of 15 knots and upwards, amounts to thirty-one ships. Nine of these are already on their stations within the quadrilateral, and from the remaining twenty-two my scheme would take eight ships, viz., the "Medea," "Medusa," "Meipomene," "Blanche," "Pearl," "Pallas," "Scout," and "Fearless."

This then completes the demand that will be made on our effective fighting ships, and, taking into consideration the fact that it will almost entirely take off the shoulders of the rest of the Navy the responsibility of commerce protection, it will, I hope, be considered that the demand made on the fighting line has been reduced to a minimum. Moreover, in collecting this force there would be practically no weakening of our naval stations outside of the quadrilateral. From the China station we take only two ships, the "Leander" and "Mercury," and it must be remembered that, under present conditions, the station has been strengthened considerably above its normal strength. From the Mediterranean we take three ships, the "Arethusa," "Fearless," and "Scout," and when we remember that the squadron in those waters would be relieved of the onus of protecting our slow steam trade, it will be readily admitted that these craft would not be much missed, the more especially as our squadron therein would for military, as distinct from commerce protecting, purposes, have to be largely reinforced by scouts and torpedo-boat destroyers.

I hope, then, that I have established my point, that in taking the ships I have named—and which are given at length in Table I.—there would be no vital weakening of our power for maintaining our supremacy at sea, either at home or abroad, remembering moreover, as I have before said, that the force thus taken would to an enormous extent relieve the Navy of what after all is one of the most important of its functions. I say "to an extent" advisedly, for if the enemy thinks he can best play his game by avoiding fleet actions and concentrating his whole energy on commerce

raiding, he will naturally strive to set free a preponderating amount of raiding force; and if he succeed in so doing, we will equally have to detach a corresponding force for commerce protection and counter attack on his raiding force. For example, say we know that two or three "Ruriks" had emerged from the Baltic, and passed round Scotland and Ireland with the intention of making a dash on the Halifax convoy, a similar number of "Powerfuls" would, I presume, have to be found to reinforce this line till the danger was passed.

I turn now to the method in which these ships would be distributed, and to show this I have drawn up Tables II., III., IV., and V. A glance at these will show that our squadrons on the N. American, Cape, and S. American stations will form the nuclei for the forces guarding respectively the N. and N.W. Atlantic, the S.E. Atlantic, and the S.W. Atlantic, while a separate force has been arranged for the protection of trade over the N.E. and Mid-Atlantic routes, *i.e.*, from home to Sierra Leone, and from Sierra Leone to Pernambuco. The tables show pretty clearly, I hope, the method adopted, and it will be necessary for me only to touch briefly on each of the divisions into which the quadrilateral has been divided.

1. *N. and N.W. Atlantic.*—Over this route our trade would proceed in convoy across the Western Ocean to Halifax, the convoy assembling, say, at Plymouth or Portland, and its strength amounting to four *A* ships, two *B* ships, and four *D* ships. The route is for its first third well within striking distance for an enemy's raiders, and consequently there would be in home waters a strong cruiser squadron of ten ships for the neck of this route. This squadron would also have work to do in connection with trade in the second division, as will be seen when I have occasion to allude to it again further on. Arrived at Halifax, the convoy ships would return home with the trade there collected. For the ships they had brought over no further convoy would be required on their road to the American and West Indian ports, and indeed many of them could take this road within—or so that they could easily run within—the territorial waters of the United States. If we draw a line from Halifax, through Bermuda and St. Lucia, to the coast of S. America, we mark the barrier which would have to be safeguarded to protect trade. To prevent raiders passing this barrier—which, it must be remembered, is the breadth of the Western Ocean from its enemy's base—there would be a cruiser squadron of six ships, and, in addition to this, the officer commanding the station would have at his disposal a powerful first class cruiser, two third class cruisers, and four *D* ships for utilisation wherever necessary.

2. *N.E. Atlantic.*—In these waters all our trade to Africa, S.E. coast of America, and round the two great southern capes, could travel on one route as far as Sierra Leone, and to protect it is allotted a convoy of four *A* ships, four *B* ships, and four *C* ships. Here the route is considerably more dangerous. It is flanked for the first third of its course by hostile ports. Its second third is also open to attack by cruisers issuing either from the Mediterranean or from the Atlantic sea-board of the Iberian Peninsula. Even its final third is flanked by territory where the second naval Power of the world is strenuously striving, and may some day succeed

in creating a Colonial Empire. For its protection then, not only has the convoy been made more powerful than that on the Halifax route, but it is supplemented by a powerful cruiser squadron, which would have Gibraltar for a base. I have already mentioned the cruiser squadron organised in home waters, and this squadron would have to be also utilisable on this route. It would, in fact, serve for the protection of the necks of both, the dates for the departure of the Halifax and Sierra Leone convoys being so arranged that the patrol squadron could be at the neck of the Halifax route when the former was leaving; and when that was clear of dangerous waters it could return to scour the first third of the Sierra Leone route, a similar method being adopted when convoy was expected. Here to avoid repetition I may state that in each case outward convoy brings homeward with it the trade collected at its port, or rendezvous, of destination. Over the second third of the route the cruiser squadron at Gibraltar would see that raiders were not allowed a free hand, and would be a strong reinforcement to the convoy through their waters. Finally arrived at Sierra Leone, the westward trade and that designed for points round Cape Horn would be convoyed as far as Pernambuco, by a convoy less in strength, but fairly powerful, and comprising three *A*, two *B*, and two *D* ships.

3. *S.E. Atlantic*.—From Sierra Leone to the Cape of Good Hope the convoy protection would comprise two squadrons, each composed of one *A*, two *B*, and four *D* ships, one taking the outward trade as far as St. Helena and bringing back the homeward, the other taking the homeward up from the Cape to St. Helena and returning with the outward. There would, moreover, be on this station three *A* ships, with Ascension, St. Helena, and Cape Town as bases, and the route would have on it a patrolling squadron of one first, two second, and three third class cruisers, in addition to the force of one first and two third class cruisers and three *D* ships left at the disposal of the officer commanding the station.

4. *S.W. Atlantic*.—Arrived at Pernambuco, southern and western trade would be a long way from an enemy's base, and would not demand powerful convoy protection. A second class cruiser and three *D* ships should suffice, and these would take their charge halfway to Stanley—say a point off the Rio Grande—and then hand them over to a similar squadron, which would return with them to the Falklands. Trade for the coast would detach at their various ports, and the whole route would have as additional protection a cruising squadron of one first and three third class cruisers, an *A* ship, with a third class cruiser attached, as station ships at Stanley, and a second and third class cruiser and a *D* ship at the disposal of the officer commanding.

This then is the disposition of the force on which we would rely for the protection of our trade. The coal question Lieutenant Crutchley has dealt with, and I only allude to it here to touch on one point. A reference to the tables will show that, throughout, the coaling bases are on British territory, with the exception of those on the route between Sierra Leone and the Falklands. Pernambuco, Rio Janeiro, and Monte Video are all capable coaling and refitting bases, and

their use to trade would, I take it, not be debarred. The extent to which coaling will be denied to belligerents by neutrals is at present by no means clearly defined. "The actual law of nations"—I am quoting from *Hall's International Law*—"places no restriction whatever upon the purchase of provisions by a belligerent in neutral ports, and the limitation sometimes imposed of late years upon their supply, and upon that of coal only, indicates the direction in which usage is likely to grow." During the American War in our ports, and in those of the United States during the War of 1870-71, belligerents were only permitted to coal once in three months, and in the latter case only if they had been to an European port in the interval. Even with some such limitation these ports would be of use to us, and, at any rate, are as available to our war-ships as to those of an enemy. If Brazil, Uruguay, and the Argentine will coal our war-ships, their doing so for our enemy's raiders will only enable us to make sure of the whereabouts of any raiding attack the latter may venture to bring so far from his own bases. Moreover, as Lieutenant Crutchley has pointed out, it will not be a difficult matter for colliers and war-ships to meet at pre-arranged points, either at sea, or at points where there is no local authority to stop them from coaling.

Lastly, I turn to the question of the coal endurance of the ships that have been taken as fitted to carry out this scheme of commerce protection. In the tables, the figures in parentheses given after each ship denote the extent of her coal endurance at a 10-knot speed. I have been forced to take them from the only source that has been available to me, namely, the "Naval Annual," and in the light of recent comments in *re* the accuracy of the "Annual" in this respect I cannot vouch for them. It will be noticed that, with the exception of the home to Sierra Leone route which has four "Apollos" on its convoy, the old-type battle-ships and armoured-cruisers, the less modern second class cruisers, and *D* ships as whippers-in, are put on convoy work, and the arrangement of the first-named on the various convoys has had to be governed more by considerations of coal endurance than of strength of ship. This has been forced on me by the lamentably weak coal endurance of the earlier ships, so much so indeed that to get a convoy of four *A* ships right through from home to Sierra Leone, six ships have to be taken, two, the "Agincourt" and "Northumberland," having to detach off Gibraltar to coal, while their place is taken by the "Sultan" and "Shannon" from that point to Sierra Leone. Again, in one or two cases, there has been put on a route a ship whose coal endurance falls short by some knots of the distance she has to cover. For example, the "Swiftsure," whose nominal coal endurance is 1,630 knots, is on the St. Helena to Cape Town convoy, a distance of 1,720 knots. I presume, however, that if necessary she could stow a bit more than her normal bunker capacity, and I take it, moreover, that every convoy will have with it some steam colliers which, at a pinch, could, under favourable weather conditions, help out a stranded war-ship.

In conclusion, I would say that the scheme has only been put before you to elicit professional opinion on this very vital point. It is merely a truism to say that our commerce is enormous, that its continuance is vital

to our empire, and that its protection is one of the causes which have made our glorious Navy what it is and for which it exists.

“The Lord our God, Most High,
He hath made the deep as dry,

He hath smote for us a pathway to the ends of all the earth,”
and it is for the Navy to see that that pathway shall remain open to us.

Here is a scheme—good or bad—for what it is worth. If good, well. If not, you will find out its weak points, and what opinion you pronounce on it in this theatre will have its weight both with the public, who are so deeply interested in this question, and with those whose duty it is to see that such a scheme is formulated. I believe that those in authority are fully aware of the importance of this subject, and that they have, no doubt, a matured plan ready when occasion shall arise—a plan which it would not only be unnecessary, but unwise, to disclose—but, at the same time, I believe that there has not been in the Service that expression of opinion on this vital question which has, through the medium of discussion in this theatre, been elicited on other questions, and to get this expression of opinion the scheme is placed before you for criticism.

Table I. List of Ships.

Station.	A Ships.	B Ships.	C Ships.	D Ships.
North America.	(f) Crescent ...		Magicienne Mohawk ... Tartar ...	Canada* Cleopatra* Tourmaline* Buzzard† Pelican† Partridge**
Cape of Good Hope.	(c) Penelope ... (f) St. George ...		Barrosa ... Blonde ... Philomel ... Phoebe ... Raccoon ...	Swallow† Magpie** Sparrow** Thrush** Widgeon**
South America.		Retribution ...	Barracouta	Acorn† Beagle†
At Home.	(a) Alexandra ... (a) Téméraire ... (a) Superb ... (b) Sultan ... (b) Hercules ... (b) Beilerophon ... (b) Audacious ... (b) Invincible ... (b) Iron Duke ... (b) Swiftsure ... (b) Triumph ... (c) Belleisle ... (d) Achilles ... (d) Agincourt ... (d) Northumberland ... (d) Nelson ... (d) Northampton ... (d) Shannon ... (e) Aurora ... (e) Australia ... (e) Galatea ... (e) Immortalité ... (e) Narcissus ... (e) Impérieuse ... (e) Warspite ... (f) Blake ... (f) Gibraltar ...	Andromache... Apollo... Latona ... Naïad ... Indefatigable ... Iphigenia ... Terpsichore ... Scylla ... Thetis ... Tribune ... Sirius ... Pique ... Brilliant ... Intrepid ... Forth ... Mersey ... Severn ... Thames ... Amphion ... Phaeton ... Iris ...	Medea ... Medusa ... Melpomene ... Blanche ... Pearl ... Pallas ...	Calypso* Calliope* Carysfort* Champion* Comus* Conquest* Constance* Cordelia* Curacoa* Heroine* Basilisk† Alert† Torch† Algerinet† Phoenix† Racer† Reindeer† Mariner† Icarus†
On Foreign Stations.		Arethusa ... Leander ... Mercury ...	Scout ... Fearless ...	

(a) Battle-ships Second Class.

(b) Battle-ships Third Class.

(c) Coast-Defence Ships.

* Third Class Cruisers.

(d) Old-Type Armoured-Cruisers.

(e) Modern Armoured-Cruisers.

(f) First Class Cruisers.

† Sloops.

** Gun-boats.

SUMMARY.

	A Ships.	B Ships.	C Ships.	D Ships.	Total.
At Home	27	21	6	19	73
From Foreign Stations	3	2	..	5
On their Stations	3	1	9	13	26
Total	30	25	17	32	104

Table II. N. and N.W. Atlantic.

Distances.	Duty.	A Ships.	B Ships.	C Ships.	D Ships.	Coaling Bases.
2,434	Squadron in Home Waters.	Blake (15,000)	Andromache (8,000)	Medea (8,000)		Home
750		Gibraltar (10,000)	Apollo (8,000)	Medusa (8,000)		
...		Aurora (8,000)	Latona (8,000)			
1,300		Australia (8,000)	Naiad (8,000)			
...	Convoy between England and Halifax.	Téméraire (2,680)	Forth (8,750)		Canada (5,400)	Home Halifax
...		Achilles (2,500)	Mersey (8,750)		Cleopatra (3,280)	
...		Nelson (2,500)			Alert (2,800)	
...		Northampton (3,850)			Torch (2,800)	
...	Patrol Squadron.	Galatea (8,000)	Indefatigable (8,000)		Magicienne (8,000)	Halifax Bermuda St. Lucia
Halifax to Bermuda ...			Iphigenia (8,000)		Blanche (3,400)	
Halifax to St. Lucia ...					Pearl (4,800)	
Plymouth to Halifax ...						
...	At disposal of O.C. on Station.	Crescent (10,000)		Mohawk (4,850)	Tourmaline (2,000)	
...				Tartar (4,850)	Buzzard (3,000)	
...					Pelican (1,480)	
...					Partridge (2,500)	

Table III. N.E. and Mid-Atlantic.

Distances.	Duty.	A Ships.	B Ships.	C Ships.	D Ships.	Coaling Bases.
2,740	Convoys between England and S. Leone.	Alexandra (2,700)	Terpsichore (8,000)		Calypso (4,000)	Home
1,740		Iron Duke (3,900)	Scylla (8,000)		Calliope (4,000)	S. Leone
1,050			Thetis (8,000)		Carysfort (3,840)	
1,977			Tribune (8,000)		Champion (3,840)	
...	Gibraltar, England and S. Leone	Agincoart (1,300)				Home
...		Northumberland (1,270)				Gibraltar
...		Sulian (2,140)				Gibraltar
...		Shannon (2,260)				S. Leone
Sierra Leone to Plymouth	Patrol off Straits.	Impérieuse (7,000)	Sirius (8,000)			Gibraltar
Gibraltar to Sierra Leone		Warspite (7,000)	Pique (8,000)			
Plymouth to Gibraltar	Convoys between Sierra Leone and Pernambuco	Triumph (1,600)	Amphion (11,000)		Racer (2,300)	S. Leone
Sierra Leone to Pernambuco		Superb (1,800)	Arethusa (11,000)		Reindeer (2,300)	Pernambuco
		Hercules (1,760)				

Table IV. S.E. Atlantic.

Distances.	Duty.	A Ships.	B Ships.	C Ships.	D Ships.	Coaling Bases.
Sierra Leone to Ascension ... Ascension to St. Helena ... St. Helena to Cape of Good Hope ...	Convey between Sierra Leone and St. Helena Cape Town.	Bellerophon (1,610)	Severn (8,750) Thames (8,750)		Comus (3,800) Basilisk (3,000) Mariner (2,300) Magpie (2,500) Conquest (3,280) Heroine (6,000) Icarus (2,300) Thrush (2,500)	S. Leone St. Helena
1,000 697 1,720		Swiftsure (1,630)	Iris (4,440) Mercury (4,950)			
	Station Ships.	Audacious (1,260) Invincible (1,580) Penelope (1,360)				Ascension St. Helena Cape Town
	Patrol Squadron.	Narcissus (8,000)	Brilliant (8,000) Iptrepid (8,000)	Barrosa (3,400) Phæbe (4,800) Philomel (4,800)		Ascension St. Helena
At disposal of O.C. Station.		St. George (10,000)		Blonde (3,400) Raccoon (4,850)	Swallow (5,000) Sparrow (2,500) Widgeon (2,500)	

Table V. S.W. Atlantic.

Distances.	Duty.	A Ships.	B Ships.	C Ships.	D Ships.	Coaling Bases.
3,000	Convoys between Point off Rio Grande and Falklands.		Leander (11,000)		Constance (5,000)	Pernambuco
1,073					Cordelia (5,400)	
1,020					Algerine (3,200)	
...			Phaeton (11,000)		Curacoa (3,280)	Falklands
...	Patrol Squadron.				Beagle (3,000)	
...		Immortalité (8,000)		Scout (6,900)	Phoenix (3,200)	
...				Pallas (4,800)		Rio Janeiro Monte Video
Pernambuco to Falklands ...	At disposal of O.C. on Station.			Melpomene (8,000)		
Rio Janeiro to Monte Video ...		Belleisle (1,824)		Fearless (6,900)		Falklands
Monte Video to Falklands ...			Retribution (8,000)	Barracouta (3,400)	Acorn (1,900)	

Captain J. D. CURTIS, R.N. Retired: Four or five years ago I was in Vancouver Island. It appears to me that the Northern Pacific Ocean is comparatively ignored in this scheme, but I presume that the Pacific Squadron would take up the ships somewhere at Magellan Straits. Then there is another point about the coal supply. The Americans now take Vancouver coal from the Union Mines, Comox,¹ in preference to their own to coal the vessels protecting the seal fisheries; it has been tested in comparison with other coals over and over again, and has been proved to be the best on the coast. I understand Vancouver coal may be had at San Francisco at £1 5s. 9d. a ton. Now I presume it is just as easy to coal the Falkland Islands from Vancouver, which is just about 6,000 miles, as it is from New Zealand or Australia. Perhaps Lieutenant Crutchley will put me right there. You have better winds, perhaps, going from Australia; you have to cross the line going to the Falkland Islands from Vancouver. Of course, the Vancouver coal is superior. There is a place midway—I do not think it is wise to name it—an island that could be easily defended, but by telegraphing either to our own colonies, to Vancouver, or to Panama, Callao, or Valparaiso, in fact many places on the coast, coal-ships could be advised where to meet our war-ships, and war-ships also advised to meet coal-ships, and I think possibly that would be cheaper than keeping a coaling station between Vancouver and the Falkland Islands as a permanent station. I have always understood coal is a munition of war. I have not read "Hall" on the subject, but in this Institution I have always understood that coal is munition of war, and that neutrals could supply you with coal to go to your own nearest port, but that you cannot go and seek a vessel, though if you are attacked I presume you can defend yourself. Of course, a man is not going to be hit without hitting out again, whether he is supplied with neutral munition or not. This map I think would be more intelligible if we had the distance on the different routes. From what I understand, Mr. Swinburne has taken most of our slow navy ships to convoy our merchant ships, but I presume there are certain classes of ships that would dart out on an enemy and drive him off, and the slow ships would adhere to the convoy.

Commander W. F. CABORNE, R.N.R.: The question of the protection of our sea-borne commerce in time of war is a most important one, the value of which can hardly be over-estimated, and however diverse may be our views as to its solution, we ought, I am sure, to feel much indebted to the lecturers for bringing it forward this afternoon, and thus affording us an opportunity for a free ventilation of our ideas. It is true that nothing is generally known as to what steps the authorities at the Admiralty will take upon an outbreak of hostilities, although, no doubt, there is a scheme duly pigeon-holed; but if we are in the dark as to their intentions, so are our probable enemies, and the latter are thus precluded from making their arrangements in advance, so as to fit in with the proposed plan. It is not always wise to wear one's heart upon one's sleeve. I take it, and the lecturers will correct me if I am wrong, that the scheme of national insurance would only apply to very fast steamers sailing independently, and to other vessels availing themselves of proffered convoy (always provided that every effort had been made to avoid capture), otherwise the door might be opened to a certain amount of fraud. I have never been a particular believer in the "Royal Naval Reserved Merchant Cruisers" as fighting vessels of any description, being of opinion that the principal value of those ships would lie in connection with the carrying of a portion of our food supply, in keeping up communication between our fleets, and in acting as fast colliers for special service; however, I am bound to admit that for this last purpose their dead-weight carrying capacity, compared with their registered tonnage, would not be so large as could be desired. For tracking down any armed merchant cruiser belonging to the enemy which might

¹ The Union Mines coal is considered equal to the best Welsh coal, "if not superior." I believe the "Warspite" took two tons of it to be thoroughly tested by the Admiralty, and the result of the test was most satisfactory.

be endeavouring to prey upon our commerce, I should prefer to trust to one of our regular cruisers, for then, when the two vessels met, there would not be the slightest doubt about the result. I am glad to see that the lecturers have practically abandoned the Suez Canal route, for, although the Canal itself might not be actually blocked, it is highly improbable that after a declaration of war any of our ships bound to the East would pass the Straits of Gibraltar, or that any of our homeward-bound vessels would pass Aden. Although not a lawyer, with regard to a question prepounded in the lecture, there seems to be little doubt, looking at past events in the China Seas, that coal carried in a neutral bottom for the use of a belligerent Power would be liable to seizure. In time of war it is probable that some system of convoy or patrol will have to be instituted, its extent being more or less regulated by our command of the sea, but, of course, I am not competent to express an opinion as to how many ships could be withdrawn from the different stations without unduly weakening our various fleets for their primary duty of seeking out, fighting and beating the enemy wherever he might be found.

Commander L. G. TIPPINGE, R.N.: There is one thing I should like to take exception to in Mr. Swinburne's arrangement of ships, that is, taking the obsolete battle-ships. I think they will be much more needed in actual fighting. After our main fleets and first class ironclads have had a large battle, rendering them *hors de combat* for a considerable time, I think that these obsolete ironclads and armoured ships will be the next that will decide the war; and if they are all over the world, employed on commerce protection, they will not be available for that which is, I think, the principal part of their duty—to meet the enemy and fight him wherever he is. Another thing is about the armed merchant ships which we are taking up and subsidising. Mr. Swinburne does not use them at all. I do not know what he proposes to use them for. Also I do not understand about the trade after leaving the Cape; I should have thought the trade to India after leaving the Cape requires protection as well as to other ports. His protection ends at the Cape, and if none of the ships can go through the Suez Canal there will be a very large number of ships going round the Cape to India and China, and there appears to be no arranged protection in the scheme for them.

Lieutenant W. C. CRUTCHLEY, R.N.R., in reply, said: I do not know that I have any further observations to make, except in reply to Captain Curtis, who spoke as to the advisability of coaling from the West Coast of North America in preference to Australia. In that I must point out that the winds would not be so favourable to make a passage to the Falklands or to the Cape of Good Hope as from Australia, in fact, sailing ships could not depend on their passage at all, because they would have to pass through the Doldrums. Of course, if you are going to use all steam colliers, that would be another matter altogether; but I presume you would scarcely have steamers enough to do the work. With regard to what Commander Caborne said as to a scheme of national insurance, and that under that condition fraud would necessarily come in, or might come in, I think that is one of the little things you would have to put up with in war time, and do the best you could with. The point I wished to make more especially was this: I do not ask what would happen theoretically, but I want to know practically what would happen if a German ship with a cargo of coal belonging to a German merchant was picked up by a Frenchman, with whom we were at war, within 200 miles of the Cape and bound for that port, and the Cape was not blockaded; I want to know what the Frenchman is going to do with that cargo of coal?

Admiral BOYS, in response to a call from the chair, said: Mr. Chairman, you have been good enough to name me, but really I am not prepared to enter upon any discussion of these papers, without a further opportunity for studying them. The subjects are of great importance. The only remark I would make about them generally is, that I think we should be grateful to the lecturers for bringing

these subjects forward in this theatre. No doubt the Admiralty have considered these questions, and made their arrangements regarding them. The plans may be at present in some pigeon-hole, and are ready to be produced should emergency arise. At the same time, I think there is great utility in such papers as we have heard to-day, which the authorities are enabled to make use of if they find any value in them. I am satisfied that many ideas and subsequent regulations for the guidance of officers have primarily originated in this Institution. The authorities need not notice them; there is no red tape about it. Whatever is said here either in lectures or discussions is made public, and therefore is available for any suitable purpose. I think the fact that there are gentlemen of ability, who will take the trouble, devote the time, make the research necessary to produce such papers as we have had before us to-day, and with confidence to bring them forward, deserve the acknowledgment of every member of the Institution.

Mr. H. L. SWINBURNE, in reply, said: With reference to what Captain Curtis has said, I did not go into the question of coal being contraband of war; I wish merely to point out that we have had no absolute declaration on this point from international jurists, and I very much doubt whether a point of international law would have very much value at all under actual war conditions—whether it would not be put altogether on one side. It is quite correct that the distances are not on the map—the map was got out hurriedly, and in fact I only saw it when I got into the Institution to-day—but the distances are given in the tables. With regard to Captain Curtis's question, I have taken the slower ships to do convoy work, but if Captain Curtis will look at the table he will see that I have placed on every route fast, powerful cruisers, and it is to that squadron I should look to handle and deal with any of the enemy's fast cruisers. With regard to Commander Caborne's remarks, I would point out that the object throughout of my scheme has been to withdraw as little fighting force as possible. I cordially agree with every word he said as regards the main duty of the fleet being to find out the enemy wherever he is, and to go for him then and there. The sole factor governing my scheme has been to effect adequate commerce protection with as little reduction of our main fighting force as possible, and for that reason I have endeavoured as far as possible to take old-type vessels. This point naturally leads up to what Commander Tippinge has said with regard to the old-type battle-ship being of use in reserve. I agree with him there, but you must provide some kind of protection, and if you are not going to take old-type battle-ships you must take commerce-protecting ships from your fast cruisers. Which can you spare the best? You have to allot some portion of your naval strength, outside of that with which you are holding in check your enemy's ports. You must detach something from that main force, with which you are holding command of the sea, and keeping the British Empire intact. You must take some portion of your naval force solely and wholly for this duty of commerce protection, for upon the proper fulfilment of this duty the whole of the trade and industry of our country will have to depend. The main object of my reading this paper is to try and elicit naval opinion on this point. If you cannot use the old-type battle-ships, then you must use your modern cruisers, and I think Commander Tippinge will agree with me that our cruisers will be urgently required for other purposes under war conditions. I think Commander Tippinge asked a question with regard to fast merchant cruisers. I do not think we need them as convoy ships; I think—perhaps I differ with Lieutenant Crutchley on this point—that these armed merchant cruisers will be in the main used for scouting purposes. Ships like the "Teutonic," which no enemy can touch for speed, will be used for carrying news, upon which perhaps the safety of the whole empire may depend. For such work you want a large ship, and you want a ship that can keep her speed in a sea-way. It is true that you also want a strong ship that will be able to keep its news, and not let it be taken from it by an enemy when it has got it; but in these ships their defensive strength will lie mainly in their speed, and I believe these armed merchant cruisers will be largely used for this purpose. I

think they are too good ships to be utilised in other ways. I pointed out in my paper that I have left the force outside of the quadrilateral as it stands at present on those stations, but I also assume in my paper that this force would be reinforced up to the requisite strength that war conditions would demand. I also mentioned once or twice in my paper that if an abnormally excessive raiding force is detached for attack, say on the Indian Ocean, then we must weaken our forces in other waters to a corresponding extent, and detach from our fighting line some ships to go out and meet that force. If the enemy brings a squadron round into the Indian Ocean it will weaken his main body, and therefore the force necessary to keep that main body in check can be weakened to a corresponding extent.

The CHAIRMAN (Sir John Colomb): Before asking you to cordially thank the lecturers for so kindly giving us these interesting papers, perhaps you will allow me to make one or two observations. I would say, in the first place, that these papers, though to-day they have not been adequately discussed here, go forth in large numbers in our JOURNAL—with a circulation of over 4,500—thus giving opportunities to students to study calmly the various features of the views put forward. Therefore, I trust the lecturers may not be discouraged by the rather limited discussion we have had upon two papers that really are very suggestive, and deserve the thought of many minds. In regard to Captain Curtis, may I say I am inclined to agree with him with reference to the coal-supply in relation to international law. With regard to the question as to whether coal is contraband or not, I am not aware that the point has been really finally settled at all. As a matter of usage we know that a rule, which has not been referred to here, was adopted by some Powers, that the amount of supply to be issued at a neutral port to a belligerent was measured by the distance of the belligerent from one of his own ports. Now, obviously you will see at once that rule gives an advantage to any belligerent in a war in which we are engaged, because, as you know, we have ports all over the world, and therefore we must expect that, if that rule is enforced again, our men-of-war in neutral ports will be, as compared with our opponents, at a disadvantage. Then with regard to the very pregnant observations of Commander Caborne, he dwelt upon one point which has been emphasised already by Lieutenant Crutchley, with which I entirely agree, and it is this, that we do not quite seem to appreciate the necessity of closer association, as regards the matter of a system of communication at sea, which would be necessary in war. I say we do not seem to adopt a policy of closely associating the Mercantile Marine and the Royal Navy as regards mere matters of communication, and I humbly support very strongly what Lieutenant Crutchley said as to the desirability of increasing and making plain a means of communication between mail steamers and men-of-war. Admiral Boys has very truly said that the lectures delivered here have a great deal of weight, and have contributed much to form the policy of the authorities, and we all know from the history of this Institution what a valuable part it has played with regard to developing ideas which, having originated here, have ultimately become practical and authoritative facts at the Admiralty and at the War Office. There is only one point about convoys which I should like to mention. There is a celebrated receipt for hare soup, and the first advice you are given is "to catch your hare." Now, when you talk about convoys, I should very much like to hear from Lieutenant Crutchley, and other officers of the Mercantile Marine, if they have at all considered the question of arranging your commerce in such a form as would enable you to act on the defensive by convoys. In order to show the importance of this, I submit just one or two very short figures which, to my mind, are fatal to the assumption that you can use convoys at all in war. Now, in the first place, let me say that war finds you as you are now; it finds your merchant ships in all quarters of the world, the very essence of our maritime life is freedom of individual action. You have to collect your ships and your Mercantile Marine in groups; that is a matter of time and place. If you take the home ports alone,

remember that every second of time 20 tons of shipping goes out or comes into our home ports, and that, as a matter of fact, the stream is continuous and never ceases. There are two ships a minute coming in and going out of our home ports. Now, convoy involves the supposition that you are going yourself to interfere with your commerce by collecting these ships in groups, which, I believe, will be fatal to your commerce itself. At all events, I merely throw out these facts for your consideration in dealing with the matter of convoy. But you have not got rid of the difficulty when you have stopped artificially, by authority, the operations of your commerce coming in and going out of your home ports; you have the same problem all over the world. You have that question in every port and off every sea-board of your world-wide empire, and not only that, but as the commerce of the world is practically carried on by British bottoms you have the same question to face on every foreign sea-board in the world. I do not know yet where the brain or the administrative machinery is to come from that can, on the declaration of war, or with any amount of notice, arrange the places, the times, and the periods at which you are going to get your commerce into this form of little groups here and there and everywhere in order to be convoyed. The last war is no precedent. As a matter of fact, the commerce outside European waters carried on by this country was, I think, $\frac{2}{3}$ ths of the whole; only $\frac{1}{3}$ ths of your commerce was outside European waters. I am speaking from memory, but at all events that was regulated for you by harvests, and by times and seasons. The West Indian fleet went out at certain times and came home at certain times, and that, naturally, caused the West Indian commerce to form itself into groups. All that has disappeared. There is just one more point. I see that Mr. Swinburne says that our trade goes out and comes in to us in four main routes. Well now, this term "our trade," if he will allow me to say so, requires a little definition. It is not British trade, it only applies to the trade of the United Kingdom, and in dealing with this question of commerce we always have to remember that there is a very large British trade that neither comes to nor goes from the United Kingdom which the Royal Navy has to protect equally with our own trade. That is a very important factor, and must be a very important factor in war. By the last return the total sea commerce of the British Empire is about £930,000,000; you must remember that would not be the value of your commerce if you were in a state of war. The fact of a declaration of war immediately reduces the total volume and value of commerce to be protected by the automatic stoppage of interchange with the hostile country. A combination of France and Russia against us would thus at once pull down automatically the sea-borne trade of the British Empire from £930,000,000 to about £830,000,000. That would be the value of the commerce remaining to be protected. When you come to deal with that, you will find that over £250,000,000 of that British sea-commerce neither comes to nor goes from the United Kingdom, and therefore you are only dealing with a limited portion of the protection of British sea-commerce if you proceed on the assumption that all the British trade is coming to and going from the United Kingdom. And recollect that this £250,000,000 which is not United Kingdom trade, and for which arrangements have equally to be made for its protection, is very nearly as great as the total sea-borne commerce of France; so when these manifold considerations are duly weighed, I suggest for your consideration that any system of convoy is practically impossible. Both lecturers gave only a hesitating adhesion to it, I think, because they spoke about patrols and routes. There is one thing very certain, that the operations of war for the protection of commerce primarily depends upon what you are able to do on the enemy's coast itself. And also it depends upon your means of shadowing hostile cruisers, otherwise the complications are manifold, while the danger of interruption by yourselves of your commerce would, in itself, be destructive of the prosperity of the commerce of this country. In conclusion, I would venture to point out that the experience of the last war shows that while we dominated the sea,

and while we had such force and such arrangements as ended in our complete triumph, the loss to our commerce has been estimated at only about $2\frac{1}{2}$ per cent. I myself see no reason, although the commerce is vaster, that the ratio should be exceeded, provided we act upon the fundamental principle that we have a war-fleet sufficient to so dominate our opponent as to produce such moral effect as would practically confine him to his ports. There will be, as Mr. Swinburne very tersely put it, leakage in the shape of raiders getting out to sea. But if we have force to pursue those raiders and have the means of getting intelligence from the sea we need not fear, because we ought then to be in a position to shadow them with a superior force and take them or drive them into port and bottle them up. For my own part, with regard to the "Reserve Mail Steamers" that have been mentioned, I opposed the vote for them in the House of Commons; I believe it is a fatal policy. I believe the true position of these very fine steamers is on their own lines in war, that is, connecting your own country and your empire, and it would be a big mistake to take them off those lines for scouting or any other purposes. I will now ask you to thank the lecturers for the ability, trouble, and pains they have taken to bring before us most suggestive and valuable papers; and I am quite sure you will allow me, on your behalf, to heartily thank them for coming here to-day.

VON LÖBELL'S ANNUAL REPORTS ON THE CHANGES AND PROGRESS IN MILITARY MATTERS DURING 1894.

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IT is a matter for satisfaction, to all interested in military affairs, that the distinguished officer who has now undertaken the arduous duty of editing these reports has elected to follow the general lines on which they have hitherto been arranged. To those who are in the habit of referring to them—and the number of these in the British Army is, we have reason to believe, constantly increasing—any extensive change of arrangement, or break in continuity, would prove a serious inconvenience. We are, therefore, pleased to observe that Lieutenant-General von Pelet-Narbonne disclaims in his preface to the present issue any intention of changing the general form of the work; while at the same time he indicates his desire to restrict the matter contained in the first part (detail of changes in various armies) of the reports to what is essential and important to the military efficiency of the several armies dealt with. Anything that will contribute towards making the work shorter and more concise must be welcomed by all who make use of it; we cannot but recognise, however, that in a work of such extended scope, further condensation must prove a difficult task.

This year there are no fewer than twenty-two armies in Europe and Asia dealt with, and, though those of minor States occupy but a few pages each, it is not possible to dispose of the forces of the great military Powers with equal brevity. Every change, for instance, in the armies of France and Russia is watched in Germany with the greatest attention, and modifications—unimportant perhaps in themselves—can scarcely be left unnoticed.

Part II. deals with the tactics of the several armies and their armament, fortifications, engineering, telegraphs, etc. Part III., in which are recorded the military operations that took place during 1894, occupies more space than it has done for some years. The greater portion of this is filled by the notice of the war between Japan and China. Next in importance are the operations conducted by the Italians in Erythrea, their comparatively recent acquisition in East Africa. Of

minor affairs there are noticed the collisions between the Germans and the natives in their East African possessions, the forces of the Congo State and the Arabs at Mundu, the French and the natives in the Sudan, South Algiers and Tonkin, the British South African Company's forces and the Matabeles, the Spaniards with the Riff tribes at Melilla and with the Malays at Mindanao, and the Dutch expedition to the island of Lombok, forming part of the Sunda group situated immediately west of Sumatra.

The *précis* that follows has been compiled with a view to affording officers who are unable to consult the original an opportunity of following the general course of the more important changes, which are described in greater detail in the reports themselves. To these are referred all officers who have a sufficient knowledge of the German language to be able to read them. They will be repaid for the time spent over their perusal by the increased knowledge they will acquire both of Continental armies and of German military nomenclature.

H. H.

GERMANY.

Peace Establishment.—The numbers of each arm and branch of the Service having been fixed for a term of years, were in 1894 the same as in the previous year. The total establishment was:—

18,699 officers.
528,167 other ranks.
95,794 horses.
2,542 horsed guns.
97 horsed ammunition wagons.

Recruiting.—For the whole of Germany the numbers on the alphabetical and postponed list for the year 1892-3 was 1,522,076, distributed as follows:—

Unaccounted for	-	-	-	-	-	45,522
Failed to appear	-	-	-	-	-	117,483
Become liable to service at other times	-	-	-	-	-	375,390
Postponed	-	-	-	-	-	517,186
Excluded	-	-	-	-	-	1,431
Rejected	-	-	-	-	-	30,496
Allotted to the Landwehr (1st levy)	-	-	-	-	-	90,217
„ „ Ersatz reserve	-	-	-	-	-	84,394
„ „ Naval „	-	-	-	-	-	334
Enrolled	-	-	-	-	-	234,685
In excess of requirements	-	-	-	-	-	8,350
Enlisted voluntarily in the Army	-	-	-	-	-	15,814
„ „ Navy	-	-	-	-	-	774
Total	-	-	-	-	-	1,522,076

From these figures it appears that the fear, expressed at the time of the discussion on the increase of the army in 1893, that the men required to complete the larger annual contingent would not be forthcoming, was unfounded.

The normal quotas under the new arrangement of two years' service were fixed at the following proportions:—

- For each infantry battalion, including the 4th,
 „ the Grand Duke of Mecklenburg's rifle battalion No. 14,
 „ each field battery,
 „ „ battalion of foot artillery,
 „ „ pioneer battalion,
 „ „ railway battalion,
 „ the balloon sections,
 „ „ train battalions in which the active service is for two years,

the half of the established strength of the rank and file and assistant hospital attendants, exclusive of re-engaged men; and, so far as the places of the latter on the establishment have not been filled, to the number of such deficiency. Further, for the completion of the artillery schools, and the company belonging to the artillery commission dealing with experiments, etc.:—

- For each field and horse battery, 1 man.
 „ „ foot artillery battalion, 9 men.
 „ „ of the remaining rifle battalions on the higher establishment, at least 283 men.
 „ the guard rifle battalion, at least 250 men.
 „ each of the rifle and other battalions on the lower establishment, 258 men.
 „ „ cavalry regiment on the higher establishment, 160 men.
 „ „ „ „ medium or lower establishment, 150 men.
 „ „ horse artillery battery on the higher establishment, 35 „
 „ „ „ „ „ medium „ 32 „
 „ „ „ „ „ lower „ 25 „
 „ „ train company having six months' active service in the autumn of 1894, and again in the spring of 1895, 38 men.

Throughout all branches of the Service, one half of the establishment of tradesmen.

BELGIUM.

The available armed forces and their distribution are shown below:—

Field army	-	-	-	-	-	72,932 men.
<i>Fortress Troops.</i>						
Antwerp	{	Garrison	-	20,833	}	- 30,916 „
		Mobile troops	-	10,083	}	
Liège	{	Garrison	-	4,843	}	- 8,949 „
		Mobile troops	-	4,106	}	
Namur	{	Garrison	-	4,810	}	- 6,882 „
		Mobile troops	-	2,072	}	
Termonde	-	-	-	-	-	- 4,427 „
Diest	-	-	-	-	-	- 2,642 „
Juy	-	-	-	-	-	- 586 „
Ersatz troops	-	-	-	-	-	- 3,978 „
Total	-	-	-	-	-	- 131,312 men.

Defence Committees.—In the fortresses of Antwerp, Liège, Namur, Termonde, and Diest, committees have been formed with the object of carrying out or preparing in peace-time all the measures they consider necessary for placing the armament of the fortresses on the best possible footing for defence.

In the three places first named the following is in each case the composition of the committee :—

- 1 General as president; the Chief of the Staff of the fortress concerned; the Directors of Artillery and of Engineers of the district; the senior Intendant Official and a Surgeon, as members.

This committee assembles annually to settle the schemes of defence and mobilisation. The proposals drawn up are transmitted to the Fortresses Committee, consisting of the Inspectors-General of Artillery and of Engineers, and the Chief of the Staff of the Army, who consider them, and submit them to the Minister of War with any remarks they may have to make.

Mobilisation.—The 4th Army Division was mobilised between the 26th August and the 8th September. The experiment was taken advantage of to train the men called up in the use of the rifle M/89, and manœuvres were held between the camp of Beverloo and Brussels. The following was the composition of the division :—The divisional staff, 2 infantry brigades, 1 battalion of carbineers, 1 company of engineers, 8 field batteries, 2 squadrons, 1 train company, 1 administrative detachment, 2 artillery ammunition columns, 2 infantry ammunition columns, 1 park column, 1 section of engineer park, 1 bearer column, 2 provision columns, 1 horse dépôt, and 2 field hospitals.

It was found that the men called up arrived with their units so late in the day, that the issue to them of clothing and arms could not be completed before a late hour of the night. Consequently the men were tired next day and little fitted for marching and other duties. With a view to avoiding this on future occasions, an order was given that the men must reach their dépôts on the forenoon of the day on which they are ordered to join, with certain exceptions in the case of those residing at a distance.

The mobilisation also could not be carried out altogether as intended, because of deficiencies in the necessary equipment. One of the infantry and one of the artillery ammunition columns could not on this account be formed at all; the batteries had only 6 wagons instead of 9; these wagons and others had only 4 instead of 6 horses. Notwithstanding this, it was necessary to borrow both men and horses in considerable numbers from all the artillery regiments, the train and administration troops from Liège, Ghent, and Antwerp.

The reservists of the 4th Division were not called up, so the reserve regiments were not mobilised. The units were easily raised to war strength, some companies were in excess of it, numbering from 275 to 280 men. On the evening of the 28th August, two days after the issue of the

order, the whole of the men called up from furlough and all the material were assembled in the camp of Beverloo.

Besides the wagons of the Engineer Company from Antwerp, the whole of the vehicles of the division were entrained at three stations in Brussels, and forwarded in twenty trains to the camp. Two trains brought the men called up for the Grenadiers and the 3rd Rifles from Malines.

The mobilised division numbered 414 officers, 15,126 men, 2,303 horses, and 348 wagons.

Re-organisation of the Army.—A Bill was brought forward in November proposing changes in the organisation, with a view to a more even distribution of the military burden.

The following are the more important of these :—

1. The formation of a new class of volunteers, from whom no longer period of service with the colours would be required than that fixed for the Militia.

2. Reduction of the period of service with the colours of the ordinary volunteer to four or five years, and increase of his pay.

3. Establishment of volunteers, very similar to the one-year volunteers in Germany, from whom the officers and non-commissioned officers of the Reserve would be completed.

4. The prospect of obtaining a civil appointment for every volunteer on the completion of his service with the colours.

5. The division of the annual contingent of recruits into two classes: an active portion of 15,500 men, and a portion of 2,500 men for the Reserve, composed of those who have drawn the highest numbers.

6. Abolition of substitutes; but exchange between men in the two different portions of the contingent to be allowed.

7. Reduction of the period of service with the colours, which would be fixed as follows: for infantry and other foot troops, 17½ months during the first and second years, and 4½ months during the third year; for the field artillery, 29 months; and for the cavalry and horse artillery, 3 years.

8. Introduction of a defence tax, which would have to be paid by every citizen not belonging to the army between the ages of 20 and 32. This tax to be reduced by a half if he belongs to the 1st Levy of the National Guard, which would be organised.

9. Re-organisation of the field army, which, besides the two cavalry divisions and their horse artillery batteries, would consist of 4 divisions, each of 3 infantry brigades, an artillery regiment with 12 field batteries, a cavalry regiment, a carabineer battalion, and the usual auxiliary services. Including the garrison and dépôt troops, the Belgian Army would, under this scheme, number 180,000 men.

BULGARIA AND EAST ROUMELIA.

The peace strength of the army, as fixed by the Estimates, was 35,495 combatants, 424 non-combatants (musicians, etc.), total 35,919 men. This strength was not, however, reached during 1894; from reasons of

economy it was kept on the average 6 per cent. below it. There were kept horsed 216 field and mountain guns and howitzers, and only 41 ammunition wagons (1 per battery).

The war strength is estimated in round numbers to be as follows :—

Distribution	Rationed Strength			Combatant Strength		
	Men	Horses and Oxen	Wagons	Bayonets	Sabres	Guns
Field Army	127,000	23,000	6,000	90,500	4,700	252
Reserve Army	82,000	15,500	3,000	61,000	2,300	168
Landsturm	48,000	—	—	28,500	—	—
Total	257,000	38,500	9,000	180,000	7,000	420

Organisation.—The chief of the staff of the army has been made also the Inspector of the whole army. At the present time he is also Minister of War.

Recruiting.—The number incurring liability to military service was 35,000, of whom 24,000 were enrolled.

Looking to the rate of increase of the Bulgarian population in recent years, to the recruiting experiences and the progress made in the method of training, it is calculated the recruiting material for the Bulgarian Army will in twenty-five years have amounted to 600,000 men. After allowing for 40 per cent. waste, the number of trained men should still amount then to 360,000.

Mobilisation.—Under the directions of the new Minister of War, Colonel Petrow, the preparations for mobilisation are being carried out with greater energy than ever. At the end of 1894 attention was being directed especially to the regulations for the army in the field, regarding supply, line of communication, etc.

In order to supply as a temporary measure the want of trains, every parish is under the obligation of keeping always ready a wagon of a prescribed pattern and a pair of horses. The military commanders of districts are charged with their control. In this manner, at the present time, there are in each divisional district from 150 to 180 of these two-horsed wagons in good condition, making over 1,000 for the whole army.

Training.—In the manœuvres in 1894 opposing forces operated against one another in the neighbourhood of the passes of Verbitza and Kotel as far as the Schipka Pass. The south corps consisted of 15 battalions, 8½ squadrons, 5 field, 1 howitzer, and 2 mountain batteries.

The north corps comprised 15 battalions, 6½ squadrons, 6 field, and 2 mountain batteries. The tactical training of the infantry, as evidenced by these manœuvres, was shown to be very good, that of the artillery good, and that of the cavalry insufficient. The fire-discipline, discipline on the march, and the power of marching were excellent; and the impression produced generally by the manœuvres was very promising for the future performances of the Bulgarian Army in the field. With the exception of the cavalry, the troops not only performed their duty, but did more than was to be expected, and more than is usually seen in the Balkan armies.

DENMARK.

The peace organisation of the army is in two general commands; the Head Quarters of the first is at Copenhagen, and of the 2nd at Aarhus. The former comprises 2 brigades of 13 battalions (including 1 of the Body Guard), 2 regiments of cavalry numbering 6 squadrons, $1\frac{1}{2}$ regiments of field artillery having 3 divisions each of 3 batteries, 2 battalions of fortress artillery comprising 6 companies, and 1 regiment of engineers of 5 companies.

The second command has 3 brigades having 6 regiments of 18 battalions, 3 regiments of cavalry having nine squadrons, $\frac{1}{2}$ -regiment of field artillery, forming 1 division of 3 batteries. There are further the following cadres for reserves to the active army:—1 Body Guard battalion, 10 line battalions (1 per regiment), 2 battalions for Copenhagen, 4 batteries (1 per division), 5 artillery companies, including a reserve for Bornholm, and 3 reserve companies of engineers.

The war strength of the army by arms is the following:—

	Officers.	Men.
Infantry - - - - -	799	33,780
Cavalry - - - - -	138	2,367
Field and fortress artillery and train - - - - -	187	5,084
Engineer troops - - - - -	61	1,672
Total - - - - -	1,185	42,903

In addition to these numbers there would be available for reinforcement 245 officers and 13,720 men.

FRANCE.

The important changes effected during 1894 comprise the new organisation of the field artillery and the simultaneous addition to it of 28 batteries, the abolition of the regiments of pontoneers, the duties of which are to be transferred to the engineers, and the issue of new drill regulations for the infantry.

The following is the distribution of the units of the several arms:—

Distribution	Battalions	Squadrons	Batteries				Engineer Companies	Train Companies
			Field	Horse	Mountain	Foot		
In France	538	395	420	52	22	95	91	60
„ Algeria	33	40	3	—	6	3	3	9
„ Tunis	10	10	1	—	2	1	1	3
„ Corsica	3	—	1	—	1	1	—	—
„ Tonkin	4	—	—	—	—	—	—	—

The Madagascar expeditionary force, the components of which are not included in the table, is constituted as follows:—

1st Brigade (Army).

- 1 combined infantry regiment of the line of 3 battalions.
- 1 combined infantry regiment comprising 1 battalion Zouaves and 2 battalions Algerian Tirailleurs.

2nd Brigade (Marine).

- 1 combined marine infantry regiment,
- 3 battalions of native Tirailleurs.

In addition to these brigades there are 2 squadrons (Chasseurs d'Afrique or Spahis), 1 rifle battalion, 6 batteries, 2 engineer companies, and 1 train company. With staffs and auxiliary services, 15,000 men.

Marine Troops.—That portion of the marine troops serving in the interior of France is destined in war to reinforce the regular army.

The infantry is distributed as follows :—

1st Division (Paris).

1st Brigade (Cherbourg)—

- 1st and 5th Regiments, each of 4 battalions and 14 active companies.

2nd Brigade (Brest)—

- 2nd and 6th Regiments, each of 4 battalions and 14 active companies.

2nd Division (Paris).

3rd Brigade (Rochefort)—

- 3rd and 7th Regiments, together 7 battalions and 26 active companies.

4th Brigade (Toulon)—

- 4th and 8th Regiments, together 9 battalions and 34 active companies.

One combined battalion of the 1st Brigade, 1 of the 3rd, and 2 of the 2nd belong to the garrison of Paris. The regiments 1 to 4 have further each 1 company of non-combatants.

The marine artillery consists of :—

- 2 regiments having together 6 field batteries,
- 4 mountain batteries,
- 13 foot batteries.
- 5 companies of artificers, and 1 laboratory company.

Composition of an Army Corps.—In war the army corps is constituted in the following manner :—

1st. Head Quarters of the corps :—

- 55 officers, officials ranking with officers and surgeons.
- 322 non-commissioned officers, and men.
- 280 horses.
- 43 vehicles.

2nd. 2 infantry divisions, each with :—

Head Quarters numbering 20 officers, etc.

103 non-commissioned officers and men.

87 horses and 10 vehicles.

2 infantry brigades of 2 regiments of 3 battalions.

6 field batteries in 2 groups.

1 engineer company, with divisional bridging train.

3 ammunition sections, 2 for gun and one for small-arm ammunition.

1 ambulance.

1 supply column.

- 3rd. 1 cavalry brigade, of 2 regiments (1 Dragoon and 1 Light regiment) of 4 squadrons and 1 ambulance.
- 4th. The corps artillery with :—
 - 6 field batteries in 2 groups.
 - 2 horse batteries, forming 1 group.
 - 4 ammunition sections for gun ammunition.
- 5th. The engineer reserve, 1 company with the corps bridging train.
- 6th. Columns and train of the army corps :—
 - 1 artillery park.
 - 1 engineer „
 - 1 ambulance for headquarters.
 - 8 field hospitals.
 - 2 to 4 supply columns.
 - 5 auxiliary supply columns.
 - 1 mobile clothing depôt.
 - 1 „ horse depôt.
 - 1 field bakery.

An independent cavalry division is composed of the following :—

- 1st. Head Quarters, to which are attached a captain of engineers and telegraph detachment.
- 2nd. 3 cavalry brigades, each of 2 regiments of 4 squadrons.
- 3rd. 1 group of 2 horse artillery batteries.
- 4th. 1 ambulance, and eventually 1 supply column and 1 light field telegraph section.

As a rule each cavalry division would contain 1 cuirassier, 1 dragoon, and 1 light brigade.

The foregoing details are extracted from the latest edition of the “Aide-mémoire de l'officier d'état-major en campagne,” which is published officially.

Though given as the normal formation of the bodies of troops dealt with, the distribution in column of march is also indicated of an army corps composed of 3 infantry divisions, of a division consisting of 3 brigades and of a brigade containing 3 regiments. From this it may be inferred that in war the several army corps, or some of them, would be organised differently from the distribution given in the normal arrangement, so as to admit of the addition to the corps of 4 reserve regiments, and eventually of 2 groups of divisional artillery.

No new sources of information are available respecting the number of trained soldiers that could be counted upon in the event of mobilisation. It may probably be estimated to have been, at the most, 4,350,000 men at the close of 1894.

Organisation.—A new law of the 29th June, 1894, introduced the following modifications in the organisation of the artillery and engineers :—

The two artillery pontoneer regiments are to be abolished, and their duties undertaken by the engineers; the officers and men of the regiments abolished are to be utilised in the following new formations :—

2 new regiments of engineers, numbered 6 and 7, are to be raised, and 2 engineer driver companies.

There is to be a driver company to each regiment of engineers.

In the artillery two field artillery regiments, to be the 39th and 40th, were to be created, and 28 new batteries.

The batteries were to be allotted to the several battalions and regiments, according to the exigencies of the Service.

The arrangements made to give effect to the law quoted are the following :—

The 39th Regiment was formed by the transfer from 2 existing regiments of 9 field batteries; no horse batteries were allotted to it.

The 40th Regiment was formed by the transfer to it from 9 existing regiments of 12 field and 3 horse batteries.

The numbers of batteries of field and horse artillery belonging to the 38 previously existing regiments were re-allotted, and the new establishments fixed were attained by conversion, inter-transfer and the raising in 26 of these regiments of 1 field battery per regiment, and in one of a mountain battery; one battery, therefore, has still to be raised. As a part of the scheme of re-distribution of batteries, 5 horse batteries were converted into field batteries.

This re-distribution was based on the requirements of the several army corps, to each of which (except the 6th) 2 artillery regiments belong; the 6th Corps, on the frontier, has 4 regiments.

The 11th, 17th, and 18th Corps have 20 field and 2 horse batteries - - - - - total 22 bat. each

„ 1st, 2nd, 3rd, 8th, 10th, 12th, 13th, and 16th

Corps have 22 field and 2 horse batteries „ 24 „

„ 4th Corps has 21 field and 4 horse batteries „ 25 „

„ 7th Corps has 23 field and 2 horse batteries „ 25 „

„ 9th Corps has 24 field and 2 horse batteries „ 26 „

„ 15th Corps has 15 field, 2 horse, and 9

mountain batteries - - - - - „ 26 „

„ 5th Corps has 24 field and 4 horse batteries „ 28 „

„ 14th Corps has 19 field, 2 horse, and 12

mountain batteries - - - - - „ 33 „

„ 19th Corps has in France 18 field and 5 horse

batteries, and in Algeria 4 foot, 4 field,

and 8 mountain batteries - - - - - „ 39 „

„ 6th Corps has 41 field, 9 horse, and 2

mountain batteries - - - - - „ 52 „

In May, 1894, a new brigade was formed in the 6th Region and named the St. Nicolas Brigade, its headquarters being located at St. Nicolas du Port.

It is composed as follows :—

The 153rd Infantry Regiment stationed at Toul.

„ 2nd Rifle Battalions at Lunéville.

„ 4th „ „ St. Nicolas du Port.

„ 20th „ „ Baccarat.

The 2nd and 4th Rifles were transferred from the 21st Infantry Brigade and the 20th from the 22nd Brigade to which they were previously attached.

A 5th and 6th Company were in March added to the 1st Rifle Battalion at Verdun, the 2nd at Longwy, the 20th at Baccarat, the 25th and 26th at St. Mihiel.

In August, the 16th Battalion at Lille and the 29th at Vincennes received a similar increase. Consequently 28 out of the 30 rifle battalions have now 6 companies, and 2 only remain on the previous 4-company establishment.

The 2 new regiments of engineers, the 6th and 7th, were constituted in October, and the staff, etc., created.

Also an engineer driver company for each of these regiments, composed as follows :—

- 1 captain commandant, 1 captain 2nd class.
- 2 lieutenants or sub-lieutenants.
- 8 non-commissioned officers.
- 14 corporals and men of the cadre.
- 80 drivers.

Recruiting.—The number on the muster-roll for 1893 was 343,651, 66,226 more than in the previous year. Deduction had to be made from this number of 30,356 declared to be unfit for service and of 10,784 who had not appeared at the muster.

Of those pronounced fit for service there were :—

Enrolled for 1 year - - - - -	43,997
Enrolled for 2 or 3 years - - - - -	156,576
Postponed - - - - -	50,353
Allotted to the auxiliary services - - -	27,620
Excluded from service by reason of misconduct	115
Of the 1893 class there had already entered the army voluntarily - - - - -	34,614
Of the 40,167 postponed from the 1891 class and the 22,357 postponed from the 1892 class there were declared permanently unfit or dead - - - - -	4,711
Enrolled for 1 year - - - - -	3,026
Enrolled for 2 years - - - - -	16,190
Postponed for a further period - - - - -	21,618
Allotted to the auxiliary services - - -	16,949

Allowing for some other minor deductions the number of the contingent finally approved was 212,700 men. There were further 25,627 men voluntarily enlisted for the army in France, Algeria, and elsewhere, which makes a total of 238,327 men.

The Colonial Army.—By the law of the 30th July, 1893, this force is completed by voluntary enlistment and by re-engaged men. Young men between the ages of 18 and 20 are eligible for enlistment, and also men allotted to the auxiliary services of the army, provided they fulfil the required conditions. A bounty of 100 francs is paid on enlistment for

3 years and 200 francs if for 4 years. Further bounties are paid on re-engagement, also increased pay to re-engaged men, who, if they complete 15 years' service, are entitled to a pension. The marine troops in the interior of France also form a part of the Colonial Army.

Arrangements for Coast Defence.—All the measures to be taken in the event of mobilisation are entrusted to the Marine Prefects, who for this purpose are placed under the Minister of War. The coast is divided into 19 sections; the chief command in 5 of these is in the hands of military officers, and in 14 it is exercised by naval officers. A naval officer is attached to the former, a military officer to the latter. The commanders of sections have at their disposal those portions of the army in their districts (coast brigades, active formations of the customs officials, etc.), the marine troops, coast-guard, and all establishments connected with defence as well as, in case of attack, the floating material of the fleet.

The sea-defence establishments at Marseilles are retained under the General Commanding the 15th Army Corps, those at Dunkirk, Bayonne, Perpignan, and Nice under the governors of the fortresses concerned, who act also as section commanders. The General-in-Chief of the army of the Alps is charged with the necessary measures for the security of the coast road in the Antibes section.

Supply of Ammunition in the Field.—An instruction published in May, 1894, has replaced the regulations in force since 1890 for the supply of small-arm ammunition. The total number of rounds to be carried per man is 303, distributed as follows:—

Carried by the soldier	-	-	120 rounds	
In the company wagons	-	-	65	„ per man
In the infantry ammunition and				
park sections	-	-	118	„ „

The changes made in the former regulations were due to the abolition of the previously-existing battalion small-arm ammunition wagons, and the substitution for them of company wagons, in the proportion of 1 per company. These follow the troops, and on the adoption of fighting formation the cartridges are issued to the men, and the wagons are then assembled behind the reserve of the regiment. During the engagement, if the necessity arises, an ammunition wagon with small-arm ammunition is detached from the infantry ammunition section to each battalion. The carrying into the fighting line of the ammunition from these wagons is done by men detailed from the reserve.

GREAT BRITAIN.

It is interesting to note that besides the information usually given regarding the British Army at home and in the colonies, a special notice is this year inserted on the army in India. The motive for doing this is stated to be the importance of this force, in view of the political situation in Asia.

While stating that accurate information on the subject is wanting, it is intimated that the utmost to be anticipated as the result of the

mobilisation of the army in India is the formation of 2 army corps composed of British and Native troops in combination, and 3 or 4 cavalry divisions.

Within 6 weeks after the declaration of war, a 3rd army corps, with line of communication troops, and 1 cavalry division, would arrive from Great Britain, and about 8 weeks later a 4th army corps, when England would be in the position to assemble about 105 battalions, 116 squadrons, and 384 guns on the Indus or at Kandahar.

JAPAN.

The re-organisation of the Japanese Army after the European pattern dates only from 1872, and the results obtained are somewhat remarkable, looking to the comparatively short time that has since elapsed. The organisation of the army in peace is in 7 divisions, one of which is composed of the Guard troops. The same organisation was designed for war; but on the occasion of the mobilisation for the war against China, an army corps organisation was adopted. It is especially interesting to note at the present time the great possibilities there are for the expansion of the army.

The constitution of the Japanese division follows closely that of European armies, and numbers about 12,000 combatants in war—in peace only between 7,000 and 8,000. But the population of the territorial districts from which the annual contingents—in 1890 they amounted to 20,365 recruits—are drawn for the several divisions is proportionately very large, as may be seen by reference to the following table:—

Number and Situation of Division District	Number of Inhabitants	Number and Situation of Brigade District	Number of Inhabitants	Geographical Situation
1 Tokio ...	8,500,000	1 Tokio ...	4,500,000	Central Nippon, Northern portion
		2 Sakura ...	4,000,000	
2 Sendai ...	6,500,000	3 Sendai ...	4,000,000	Northern part of Nippon
		4 Awamori ...	2,500,000	
3 Nagoya ...	7,000,000	5 Nagoya ...	3,800,000	Central Nippon, South-Western portion
		6 Kanasawa	3,200,000	
4 Osaka...	7,000,000	7 Osaka ...	4,000,000	Between 3rd and 5th Divisions
		8 Himeji ...	3,000,000	
5 Hiroshima...	6,500,000	9 Hiroshima	3,500,000	Western portion of Nippon and Sikoko Island
		10 Mathuyama	3,000,000	
6 Kumamoto	6,000,000	11 Kumamoto	3,200,000	The Island of Kiu-siu
		12 Kokura ...	2,800,000	

Defensive Works.—Japan has taken care to defend the capital by fortifications, to maintain communication between the several portions of her territory that are separated by the sea, and to close the Straits of Corea.

The following are the works established for this purpose :—

- 1st. At the entrance to the Bay of Yeddo, to protect at the same time the military harbour of Yokusuta.
- 2nd. In the Straits of Yura.
- 3rd. At Shimonoseki.
- 4th. On the Island of Tsusima.
- 5th. The military harbour of Sashebo on the western coast of the Island of Kiu-siu was also fortified as a basis of operations against China by sea.

The fortifications answer modern requirements. Armour has not, however, been utilised in their construction.

ITALY.

The following was the available strength of the Italian Army at the beginning of 1894 :—

Standing army	-	-	-	-	837,057	men
Mobile militia	-	-	-	-	489,800	„
Sardinian „	-	-	-	-	20,281	„
Territorial „	-	-	-	-	1,986,544	„
Total					3,333,682	„

Organisation.—A number of Royal Decrees were promulgated in November, 1894, having for their object to effect economies in the Budget, by doing away with all appointments and formations which can be dispensed with in peace-time, while in war they would be superfluous.

The reductions ordered were as follows :—

1. The abolition of 8 generals' appointments.
2. „ „ the inspection of the Bersaglieri.
3. Re-arrangement of the district commands.

These will no longer, as has been the practice hitherto, train and clothe the men, but only raise recruits and conduct the remount arrangements. The charge of the clothing in peace-time and during the period of mobilisation, as well as the formation of the mobile and territorial militia units, are transferred to the active troops. The 98 permanent companies of the 87 district commands (711 officers, 2,184 non-commissioned officers, and 7,154 men), will be dissolved, and in great part embodied in the infantry units, with a view to increasing the peace strength of companies. It has been determined to increase the number of officers with the infantry regiments of the mobile militia.

4. Reduction of the number of remount depôts from 6 to 4.
5. Changes in the organisation of the artillery and engineers :—
 - (i.) Abolition of the general inspections of both arms. The inspections will deal direct with the War Office.

- (ii.) Conversion of 8 field batteries into 8 mountain batteries, of which there will now be 15. The 6 field batteries wanting are only to be replaced on mobilisation by means of mobile militia batteries.
- (iii.) Abolition of the regimental staffs of 5 fortress artillery regiments and of 14 territorial artillery directions. Simultaneously there were to be created 12 local artillery commands (each to consist of one technical official in charge of material, and 2 or more divisions of fortress or coast artillery). The fortress artillery companies to be increased at the same time from 68 to 76.
- (iv.) Decrease in the number of factories for the production of arms, ammunition, and warlike stores, without reducing the total number of workmen employed.
- (v.) Distribution in 5 regiments, instead of in 4, of the engineers, increased by 2 railway companies.
- 8. Reduction of the number of surgeons with the troops by the transfer of a number of surgeons to the hospitals.
- 9. Transfer of the duties of the revision officers (administration) to the general commands.
- 10. Reductions in the *personnel* of the War Office.
- 11. Diminution of ration allowances for officers' horses, etc.

Altogether by the foregoing arrangements, the number of officers will be reduced by more than 900, that of civilian officials in military employ by 400. The former reductions are to be effected by the 30th June, 1897, the latter on the 1st June, 1895. The changes in organisation are to be completed by the 30th June, 1896. The general inspections of artillery and engineers as well as the Bersaglieri inspection came to an end on the 1st January, 1895.

MONTENEGRO.

Excepting two companies and a mounted body guard for duty at the Court and 500 to 600 men on the frontier, no service is given in time of peace.

The country is divided into 8 brigade districts, for the purpose of embodying the forces available on mobilisation. The number of battalions provided for in each district varies according to its size.

1st Brigade (Katunska)	-	-	-	-	7 battalions.
2nd „ (Crlniča)	-	-	-	-	6 „
3rd „ (Piperska and Bjelopavlića)	-	-	-	-	5 „
4th „ (Pivska)	-	-	-	-	7 „
5th „ (Zetska)	-	-	-	-	6 „
6th „ (Vasojevića)	-	-	-	-	4 „
7th „ (Primorska)	-	-	-	-	3 „
8th „ (Vasojevića)	-	-	-	-	5 „

These 43 battalions have on an average 6 companies each, the number of companies, like that of the battalions, varying with the size of the company districts. It is a principle, however, that no battalion shall number less than 500 men or more than 1,100, and no company less than

100 men, or more than 200. Brigades would be formed of two or more battalions.

The strength of the first class of men liable to service (those between 20 and 40 years of age) should be about 28,000; from these 31 battalions would be formed. The remainder of the 12 battalions would be composed of the second class (men between 40 and 50 years of age) numbering about 12,000.

Thus the total strength of the Montenegrin Army would number about 50,000 men; that is, 25 per cent. of the population.

Artillery alone of the arms other than infantry is represented, and in war a division composed of 4 mountain and 2 field guns would be attached to each brigade.

From past experiences it would seem likely that the whole available force could be assembled within a week either on the Austrian or the Turkish frontier.

THE NETHERLANDS.

In war the forces include the field army and the garrison troops. The former consists of 3 army divisions, each composed of 3 regiments of infantry of 4 battalions of 4 companies, 1 regiment of cavalry of 5 squadrons, 1 regiment of field artillery of 2 divisions each of 3 batteries, and 1 field company of engineers; the 2nd division has also 2 horse artillery batteries. Each division has the necessary proportion of auxiliary services. A pontoon company would be added to the superior command if necessary.

The garrison troops consist of 9 infantry battalions (1 per regiment), 4 fortress artillery regiments (40 companies), 4 companies of the armoured fort artillery corps, 2 companies of the torpedo corps, and four companies of fortress engineers.

The strength of the field army should be:—

- (i.) Combatants 696 officers, 34,867 other ranks, 3,184 horse, and 120 guns.
- (ii.) Non-combatants 174 officers, 3,471 other ranks, 2,574 horses, and 459 wagons.

The garrison troops number 360 officers, 16,734 other ranks.

AUSTRIA-HUNGARY.

The estimated strength of the forces available in 1st and 2nd lines, but exclusive of the Landsturm formations, is, in round numbers, as follows:—

	Officers and men.	Horses.	Guns.
Infantry and rifles - - -	919,663	23,760	—
Cavalry - - -	93,446	89,586	—
Horse, field, and mountain artillery - - -	96,599	73,678	2,024
Pioneer troops - - -	29,695	4,465	—
Railway „ - - -	4,475	340	—
Telegraph „ - - -	4,968	1,414	—
Fortress artillery - - -	22,374	102	—
Total -	1,171,220	193,345	2,024

Re-organisation of the Austrian Landwehr.—Numerous changes have resulted from the Law of 1893, by which men joining the Landwehr without having previously served in the army are retained for two years with the colours, and the non-commissioned officers for a third year.

The Minister for Defence is at the head of the Landwehr. Under him the army corps commanders act also as the Landwehr commanders, within their respective areas; the corps districts and Landwehr territorial districts are identical. The appointment of Landwehr divisional commanders (one for each territorial district, with the exception only of Zara) is a new measure. These Landwehr divisional commanders are the representatives of the Landwehr commanders in all matters relative to the Landwehr. They are destined to command the Landwehr divisions, formed in peace-time for the autumn manœuvres, or for war. Another new arrangement is the placing of the Landwehr infantry under Landwehr brigade commanders (altogether 9).

Infantry.—It consists of 23 Landwehr and 3 rifle regiments, having together 92 battalions. Each regiment is composed of the regimental staff, 3 to 4 field battalions, each of 4 field companies, and the cadres of an Ersatz battalion. Each regiment has further the cadres of a reserve battalion. On mobilisation the Ersatz and reserve battalions are formed, and also staff companies.

The peace strength of a field company is 3 officers, 54 men; that of a regiment of 3 battalions 49 officers, 654 men; and, if of 4 battalions, 63 officers, 870 men. The Ersatz battalion cadre numbers 3 officers, 10 or 11 men; the reserve battalion cadre 1 officer, 5 men. The war strength is no longer laid down; it would apparently be the same as that of the regular army, about 19 officers, 960 men per battalion.

Periodical exercises, not exceeding 4 weeks' duration, at a period of the year other than harvest time, are prescribed for those men belonging to, but not actively serving with, the Landwehr. The battalions are as a rule to be concentrated annually during the autumn drills.

Cavalry.—The mounted troops consist of:—

- 6 Landwehr lancer regiments,
- 1 division of mounted Tyrolian rifles,
- 1 squadron of mounted Dalmatian rifles.

In peace, each Landwehr lancer regiment consists of the regimental staff and cadre of pioneer sub-division, 2 division staffs (1 to 2), 6 field squadrons (1 to 6), and an Ersatz cadre.

On mobilisation the Ersatz cadres form Ersatz squadrons and staff sub-divisions. In war, and eventually in peace, also on the occasion of exercises on a large scale, a telegraph patrol (2 non-commissioned officers trained in telegraphy, 2 orderlies, 4 horses) is to be formed.

The peace strength of a field squadron consists of 3 officers, 41 to 42 men, 18 to 19 officers and cadres' horses and 17 remounts. An Ersatz cadre is composed of 1 officer, 5 men, 3 to 4 horses.

The entire peace strength of a Landwehr lancer regiment (exclusive of the Ersatz cadre) is 29 officers, 285 men, 238 to 239 horses. The war

strength apparently would be similar with that of the regular army, which is, per squadron, 5 officers, 166 men, 161 horses.

The men are drawn from reservists of the cavalry, transfer of men still serving in the cavalry, volunteers, and some Landwehr recruits. Each regiment receives yearly 204 remounts in two portions. The remounts are trained on the average during five months and handed over for private use.

The whole of the mounted Landwehr troops are inspected by the inspector of Landwehr cavalry.

The experience, so far as it has gone, of the re-organisation is entirely favourable.

The creation of formed units in peace will facilitate their utilisation in war, and it only remains to carry the organisation further by forming permanently the brigades and divisions. The increase to the cadres and the prolongation of the period of active service ensure more thorough training and tactical instruction.

Active Army.—Infantry, the normal peace strength of the company is now 3 officers and 92 men. In 1893 the companies in 27 regiments were raised to that strength, by the addition to each of 1 corporal, 2 lance-corporals, and 6 men; in 1894, the companies in 50 more regiments were similarly increased; and by the 1st April, 1895, the remaining 25 regiments were also to be similarly dealt with.

The Bosnia-Herzegovina infantry was formed into 4 regiments of 3 battalions, and 1 Ersatz battalion cadre.

Cavalry.—From the 1st January, 1895, the Ersatz cadres are to be charged with the breaking-in of cavalry remounts. The strength of the Ersatz cadre used to be 2 officers, 21 men, 7 horses, and the duties attached to it were purely administrative. Henceforth it is to be increased by 40 men and 48 horses from the supernumeraries hitherto on the strength of each cavalry regiment. In consequence of this increase in strength, the Ersatz cadre will in future undergo the same training as a field squadron.

Field Artillery.—The re-organisation determined on towards the end of 1893 was carried out last year. A new battery was added to each of the 14 field artillery brigades, which now consist of 16 batteries each.

On mobilisation, the ammunition park cadre of each corps-artillery regiment forms the corps ammunition park and a detachment for the reserve ammunition columns of the army ammunition park.

The ammunition park cadre of each divisional artillery regiment forms the divisional artillery park.

Each corps and divisional ammunition park consists of the staff, 1 infantry and 2 artillery ammunition columns; in the corps-artillery regiments 1, 2, 4 to 7, 10 and 11 have one cavalry ammunition column in addition.

Mountain divisional ammunition parks are formed from the mountain battery division or from the mountain batteries of the corps-artillery regiment and a field ordnance detachment. They are, if necessary, divided

into ammunition columns and attached to the several mountain artillery brigades.

An army ammunition park, which is not mobile, is formed for each army. It is composed of the staff, as many reserve ammunition columns as there are corps in the army, with the detachments from the corps-artillery regiments, and a reserve ordnance column, to which a field ordnance company is attached (army or mountain ammunition field depôts are established if necessary).

Pioneer Troops.—The re-organisation of the pioneer services and establishments has also been carried out. The troops consist now, in peace, of 15 independent pioneer battalions consisting of staff, 5 companies, 1 tools reserve, and 1 Ersatz company cadre; in war the number of battalions is the same, each battalion has a staff, 7 companies, 1 entrenching tools column, 1 tools reserve, and one Ersatz company. On mobilisation the 5th, 6th, and 7th companies are formed by the 5th company by means of men drawn from the Landwehr who have served previously in the pioneers. The first four companies only are destined principally for service in the field, the last three for service in fortified places.

ROUMANIA.

Peace Strength.—As provided by the Budget, 44,721 men and 9,584 horses. To be added to these are those not embodied for permanent service, but called up annually for limited periods of training. These numbered 65,726 infantry and 8,866 cavalry.

The organisation, both in peace and war, is in 4 army corps and 1 independent division in the Dobrudscha.

The army corps have their headquarters as follows:—1st, at Krajova; 2nd, Bucharest; 3rd, Galatz; 4th, Jassy. Each corps has 2 divisions of 2 brigades, each brigade 2 regiments of 3 battalions. There is, further, 1 rifle battalion per corps, making in all 25 battalions per army corps. Of cavalry, the 1st and 2nd corps have each 20 squadrons, the 3rd 25, and the 4th 15.

Of field artillery, each corps has 3 regiments comprising 15 field and 2 horse batteries. The 2nd and 3rd corps have besides 1 regiment of fortress artillery of 2 battalions of 10 companies, also 1 engineer regiment of 3 battalions comprising 14 companies.

There is, further, a company of train and a sanitary company to each army corps.

Of the field batteries, 30 have guns of 7.5-centimetre calibre and 30 of 8.7.

Each army corps has 10 ammunition columns (4 for infantry and 6 for artillery). There is a bridging train attached to the army command.

The supply columns of the army corps are divided into 5 sections; they carry 2 days' rations. (The provision columns with the troops carry equally 2 days' rations.) There is one mobile magazine per corps with 15 days' supplies.

There is, further, an etappen magazine and a stationary depôt, at which are collected 60 days' supplies for the army.

The total rationed strength of the field army to be composed of the 4 army corps is 3,948 officers, 167,316 men, 52,604 horses, 384 guns, 7,256 vehicles, 800 draft animals; the combatant strength is 140,352 (100 battalions, 48 squadrons, 64 batteries, 16 technical companies).

The army was increased in 1894 by 1 infantry regiment (Constanza, No. 34) and 5 companies of fortress artillery.

Mobilisation.—The conditions, so far as it is possible to judge, are favourable. The territorial system has been thoroughly carried out, and sufficient modern arms are available. Permanent cadres are still required to facilitate the formation of extra units with the surplus of the men that will be available after completing the field army. In all the circumstances it seems probable that the mobilisation of the field army would be completed within about 15 days. So far as the material efficiency of the army is concerned, the etappen, train, and sanitary services are still in the early stages of development.

RUSSIA.

The peace strength of the army in Europe and the Caucasus, exclusive of local instructional troops, frontier guards, gendarmerie, and smaller units was approximately about 749,640 men with 1,744 guns.

On mobilisation for war, not including the local commands and the Caucasian Militia, the numbers available are estimated as follows:—

	Officers.	Men (combatants).
Field troops - - -	24,512	1,090,260
Reserve troops - - -	14,365	788,450
Fortress troops - - -	3,834	226,340
Ersatz troops - - -	5,285	300,412
Opoltschenie - - -	10,334	671,932
Total - - -	58,330	3,077,394

Organisation.—A new army corps (the 19th) was formed in September, 1894, from the 2nd and 38th infantry divisions and the 7th cavalry division, in the Warsaw district. This has necessitated other transfers, the general result being that the Warsaw district has been reinforced by two infantry divisions (the 38th and 16th) and two cavalry divisions (the 7th and 4th) at the expense of the neighbouring districts of Wilna, Kief, and Odessa.

Operating in the same direction eight circles of the Government of Lomsha and Grodno (hitherto belonging to the Wilna military district), and two circles of the Government of Volhynia (hitherto belonging to Kief) are for the purposes of military administration, that is, with all their garrisons, district commands, etc., to be joined to the Warsaw military district. The only troops exempted from the operation of this change are an infantry regiment and two artillery regiments quartered in the area referred to, because they form part of the divisions quartered in the Wilna district.

Re-organisation of the Engineers.—The scheme involves:—

1. The addition of a sixth engineer brigade to the five previously existing.

2. The creation of six new active battalions and two reserve battalions, the former being numbered from 14 to 19 in succession to those already existing; the reserve battalions to be numbered 1 and 2.

Later on, two more new battalions, Nos. 20 and 21, to be raised; and the engineer companies in Asia, with the exception of that in West Siberia, expanded into battalions.

3. The 17 field telegraph parks, which have hitherto formed a portion of the brigades, without being connected with particular battalions, are deprived of their separate staffs and allotted to battalions in the following manner:—

Of park No. 1 the material and a sufficient number of telegraphists, etc., are taken on the establishment of the Guard telegraph battalion. From the remaining 16 field telegraph parks 16 field telegraph companies are formed and transferred—as fourth companies—respectively to the Grenadier Engineer battalion, the 13 previously existing army battalions, and the 2 engineer battalions of the Caucasus.

The new battalions, Nos. 14 to 19, are not to get their telegraph companies until later.

The further provisions of the promulgating Order, the formation of Ersatz Engineer battalions, and the increase in the number of engineer companies in Asia, will be gradually carried out under the directions of the War Minister or of the head of the Engineer department. The projected constitution of battalions No. 20 and 21 corresponds with the anticipations of the formation of two new army corps bearing those numbers.

The general constitution of the Field Engineer parks and their number (six with that of the Caucasus) continues the same in peace. They will not only have charge, as in the past, of engineer tools, but will have also the necessary reserve stores and instruments for the telegraph companies and the cavalry (explosives, etc.).

Their disposition in war will be different. They will then be subdivided into corps columns, each one of which will carry the stores for two infantry divisions, one cavalry division, and an engineer battalion.

The number of these columns in each park depends on the number of corps in the military district in which the Field Engineer park that forms them is located. The corps column is under the commander of the engineer battalion belonging to the corps.

The creation of two Reserve battalions and three companies in peacetime, which on mobilisation will receive and form both the Reserve and the Ersatz troops, will free the active troops from leaving behind detachments for that purpose. The future Ersatz battalions will also be differently constituted. In place of the four companies of each battalion receiving men who have belonged to every branch of the engineer service indifferently, each of these branches will be represented by separate companies. The railway battalions and fortress engineers, will have separate Ersatz battalions. By an Order of December last, each of the Caucasus Engineer battalions has to give one company to the fortress engineer companies at Kars and Batoum respectively.

Field Mortar Regiments.—The number of these regiments has been increased by two, the 4th and 5th; two more are to be raised during 1895. The new regiments will only consist of two batteries in the first instance; the old regiments have four.

Field Artillery Parks.—Those parks which are equipped with two-wheeled carts for carrying small-arm ammunition will be converted into park brigades. These will form three parks each for the supply of the 48 field divisions. Of these parks one, composed of 64 carts, will be exclusively for small-arm ammunition; the other two, each consisting of 48 ammunition carts will be for gun ammunition. If in an artillery brigade there are mountain batteries as well as field artillery batteries, a fourth park will be formed of 128 pack horses; in this case the parks for the field batteries will only have 36 ammunition carts each.

Troops in Eastern Asia.—There are available in the Amur military district:—

Infantry.—2 brigades of rifles (10 battalions), 10 line battalions, the latter of war strength, and $2\frac{1}{2}$ Cossack battalions.

Cavalry.—2 Transbaikalian Cossack regiments (in peace 10 sotnias, in war 4 regiments with 22 sotnias), 1 Amur Cossack regiment (in peace 2, in war 6 sotnias), 2 Primorsk sotnias under the name of the Ussuri brigade, forming in war 6 sotnias, and an Ussuri Cossack division (in peace only 1 sotnia, in war 3 sotnias).

Artillery.—An East Siberian brigade of 6 batteries and 2 Cossack horse batteries.

There is also an East Siberian engineer company.

The regular infantry and artillery are recruited exclusively from Europe, and it is not possible to say with certainty how far the force is in a position to be placed complete on a war footing. According to Russian sources, including the troops quartered in the Irkutsk military district, there can be assembled in the Amur territory 30,000 infantry, 5,000 cavalry, 1,600 artillery, and 82 guns. The actual concentration of a force of these dimensions, especially as regards guns, seems, to say the least, doubtful. The view generally accepted in Europe that these troops are badly armed and trained, would seem, from the reports made on the subject last year by the commander of the Amur military district in connection with his inspections, to be an erroneous one.

Experimental Mobilisations.—Entire reserve brigades were called out and brought approximately up to war strength, also a mixed Cossack division of the 2nd category and a reserve battery. The mobilisation and transport of the regiments concerned were carried out without interruption or loss of time. In order to test the readiness of the cavalry to march at short notice, at 9 p.m., on the 23rd October (old style), General Dragomiroff gave the order for the 32nd Dragoon Regiment to assemble at Dubno with the least possible delay. At 11.20 p.m. the order was sent to the commander of the regiment, at 12.40 a.m. it was transmitted, together with the necessary instructions concerning it, to the several squadrons which were located in the neighbourhood. These instructions indicated the hour by which the squadrons were to have completed their

movement, and in every case they arrived earlier than the hour fixed. The train was also in readiness, and was only found wanting in certain particulars. Amongst the draught and pack horses many were found too small, and in bad condition.

SWITZERLAND.

The forces that would become available on mobilisation are divided into three categories: the 1st comprises all able-bodied men between the ages of 20 and 32; the 2nd, those between 33 and 40; the 3rd, all others between the ages of 17 and 50.

The 1st Category (Auszug).—Comprised on the 1st January, 1894, 97,929 infantry, 3,244 cavalry, 20,294 artillery and train, 6,792 engineers and auxiliary services.

These are organised in 4 army corps, each having 2 divisions of 2 brigades of 2 regiments of 3 battalions, 1 brigade of cavalry, of 2 regiments of 3 squadrons, and 2½ companies of guides, 2 brigades of 3 regiments of 2 batteries and 4 park columns field artillery, 2 battalions engineers, 2 battalions of train and auxiliary services, amongst which are to be noted 1 division of cyclists per army corps. There are further unallotted 2 battalions (those of the St. Gothard), 2 companies of guides, destined for the army headquarters, 1 regiment of mountain artillery, of 2 batteries, 3 companies of fortress artillery, 2 ordnance companies, and 1 division of cyclists for army headquarters.

The 2nd Category (Landwehr).—Strength, 57,979 infantry, 2,936 cavalry, 12,357 artillery and train, 3,236 engineers and auxiliary services. The units of the Landwehr have the same distribution and numbers as those of the Auszug corresponding to them.

The troops of the Auszug and the Landwehr form together divisions 1 to 5 of artillery of position; each division comprises 4 companies and 32 guns. There is also an Ersatz reserve division composed of 5 companies with 64 guns.

The 3rd Category (Landsturm).—The men belonging to this category form 96 fusilier battalions, 26 companies of rifles, 26 artillery, and 27 pioneer companies.

The strength available is 53,981 fusiliers, 4,672 rifles, 3,206 artillery of position, 115,958 pioneers, 95,479 auxiliary services.

In Switzerland there is no distinction in organisation or strength between a peace and war footing. In principle the Auszug and Landwehr form the field army; but in practice the Landwehr would on mobilisation be allotted as required, part to the army corps, and part to the fortresses, while a portion would be retained for territorial duties. Only the seven youngest classes of the Landwehr, or about 25,000 men, have as yet been armed and exercised with the new M/89 rifle.

From the paper strength of the forces given above it would be necessary to deduct at least 20 per cent. probably to obtain the marching-out strength. Officially only 15 per cent. are reckoned supernumerary to the required effective strength.

By a new Law the armed portion of the Landwehr of and over 20 years of age have to come up annually for one day for inspection and instruction. The infantry are further required to take part in the firing exercises of the volunteer rifle clubs. The cadres both of the armed and unarmed Landwehr can be called up for 1 or 2 days' drill yearly.

Training and Instruction.—These are carried out by means of the annual recruit, non-commissioned officers, and officers' schools, also by the periodical exercises which for the Auszug are biennial and for the Landwehr once in four years, and last for 18 days. The cavalry alone has them every year. As an exceptional measure, due to the new armament, the infantry of the 1st Army Corps had last year a musketry course of 6 days' duration. In the 3rd Army Corps battalion exercises took place; and the 4th Army Corps had manœuvres in country adapted to the practice of mountain warfare.

The men of the Auszug belonging to the Gothard infantry were exercised for 18 days by battalions.

SPAIN.

The distribution of the army in peace and war is equally in seven army corps, the headquarters of which are located, respectively, at Madrid, Seville, Valencia, Barcelona, Saragossa, Burgos, and Valladolid. Of these the 1st corps has 3 infantry divisions and 1 cavalry division; the 6th has 3 infantry divisions, and the remaining five corps 2 infantry divisions each.

Of infantry, the 1st corps has 6 brigades, comprising 10 regiments, 20 battalions; the 2nd, 4th, and 6th corps have each 4 brigades—8 regiments, 16 battalions; the 3rd corps has 4 brigades—7 regiments, 14 battalions; the 5th corps has 2 brigades—4 regiments, 8 battalions; and the 7th has 2 brigades—5 regiments, 10 battalions.

The 1st, 2nd, 4th, and 6th corps have each 1 brigade—4 battalions of rifles; the 3rd and 7th corps have each $\frac{1}{2}$ brigade—2 battalions.

Of cavalry, the 1st corps has 2 brigades—7 regiments, 28 squadrons; the 2nd, 6th, and 7th corps, 1 brigade—4 regiments, 16 squadrons; the 4th corps, 1 brigade—5 regiments, 20 squadrons; and the 5th corps, 1 brigade—2 regiments, 8 squadrons.

Of field and mountain artillery the 1st corps has 3 regiments, 6 divisions, 12 batteries, also 2 horse batteries; the 2nd, 3rd, 4th, and 7th corps have each 2 regiments, 4 divisions, 8 batteries; the 6th corps has 3 regiments, 6 divisions, 12 batteries; and the 5th corps, 1 regiment, 2 divisions, 4 batteries.

Of fortress artillery, the 1st and 5th corps have each 1 company; the 2nd corps, 2 companies; the 3rd, 4th, and 7th, 1 battalion, 6 companies; and the 6th corps, 2 battalions, 12 companies.

Each corps has 1 battalion, 4 companies of engineers; the 1st corps has 1 regiment, 2 battalions, 8 companies.

There are besides, not included in army corps, 1 regiment, 2 divisions, 4 batteries of field artillery, and 4 battalions—26 companies of fortress artillery.

Of reserve formations, which in peace have only weak cadres, there are 50 infantry and 10 rifle regiments.

There are also 1 pontoon regiment, 1 telegraph battalion, and 1 railway battalion, each of 4 companies; 1 telegraph brigade of 2 companies, auxiliary services, and engineer and artillery depôts.

The peace strength for 1894-95 was limited to the following:—

Army of the Peninsula	-	-	82,000	men.
Troops for Cuba	-	"	13,000	"
" " the Philippines	-	"	11,000	"
" " Porto Rico	-	"	7,000	"
The Guardia Civil	-	"	15,412	"
Carabineros (Customs)	-	"	14,156	"

The mobilised forces are estimated to amount for the 7 army corps to 176,035 exclusive of officers, with 590 guns. Of reserve troops, there are estimated as available 5,500 officers and 585,000 men of the 1st Reserve, and 1,217,000 men of the 2nd Reserve.

TURKEY.

The total peace strength of the army and establishments is from 220,000 to 225,000 men; but of this number only from 170,000 to 175,000 are included in the strength of the combatant formations.

The distribution of the forces is in 6 army regions, the headquarters of which are at Constantinople, Adrianople, Monastir, Erzeroum, Damascus, and Bagdad respectively; there are 2 divisions at Yemen and 1 division at Hedjar, Tripoli, and Crete respectively.

In war, each of the 6 army regions forms 4 army corps, 1 of line troops (Nizamie), 2 of Landwehr (Redif), and 1 of Landsturm (Mustahfiz). Each of these army corps has 2 divisions—4 brigades, 8 regiments of infantry; 1 cavalry brigade—2 regiments; 1 artillery brigade—2 regiments; 1 engineer battalion, 1 train battalion and auxiliary field services.

The army corps formed by the line troops are complete in peace, even to some of the special formations and field establishments. The 2 Redif corps have also, in the first 5 army regions, the cadres of their infantry formations; in the 6th army region (Bagdad) only one-half, that is, cadres for one army corps are in existence. One brigade each of cavalry and artillery is given by the Nizamie corps to each Redif corps; to admit of this the Nizamie corps has in peace 3 brigades of cavalry and artillery (the 6th Corps is an exception, it has only 1 regiment of artillery). Engineers, train, and the other special troops and field establishments would have to be formed on mobilisation, and for these formations no preparations are made in time of peace.

For the Mustahfiz corps absolutely nothing is ready in peace.

According to the estimate given in the Reports for 1892, it is probable, looking to the actual conditions, that for a great defensive war Turkey could, within the space of two to three months, commence a campaign with about 400,000 men. In the course of a protracted war it

might be possible for her to dispose from first to last of another 400,000 men. This is the utmost that could be expected of her.

The Re-organisation Commission, the sittings of which were suspended in May, 1893, have not resumed their deliberations. The most important of the matters left undealt with by the commission was the arrangement of the questions of commands and delimitations of the Western portion of the Balkan Peninsula (3rd army region), and, in connection with this, the new constitution of the 5th army region (Damascus).

The following regulations, which represent the last work performed by the commission, still remain unsanctioned:—

Regulations regarding the formation of the train service.

“ “ service in fortresses.

“ “ the formation of a reserve of officers.

The new territorial distribution, which entailed the division into two of the previously existing battalion districts, has been carried out in part only. In the 1st, 2nd, and 3rd army regions it has been completed; in the 4th nearly so. In the 5th many difficulties have been encountered, and the arrangements could only be carried out in part. In the 6th region (Bagdad), 10 of the new battalion districts have still to be constituted, and it is a question how far it will be possible to make the new organisation anything more than a paper one. It is, indeed, very doubtful whether in this thinly-populated area, in parts hardly subject to Turkish rule at all, the necessary material will be available for the new formations.

The following table shows the general distribution of the units of each arm belonging to the several army and division regions.

Army and Division regions	Battalions	Squadrons	Batteries		
			Field	Mountn.	Horse
1st Army region (Constantinople)	27¼	28	30	6	3
2nd Army region (Adrianople)	34	30	30	6	3
3rd Army region (Monastir,) of the 3rd Army	39	30	30	6	3
and in the Western portion) of the 1st Army	14	5	—	—	—
of the Balkan Peninsula) of the 5th Army	11	—	12	—	—
4th Army region (Erzeroum)	34	30	30	6	3
5th Army region (Damascus)	17	27	17	6	3
6th Army region (Bagdad)	34	30	12	2	3
7th Army region (Yemen, Assyr, and the newly occupied territory of Saada)	32	—	4	4	—
Division region (Hedjar)	13	3	—	4	—
Division region (Crete)	13	2	—	4	—
Division region (Tripoli)	18	10	4	2	—
Total	286¼	195	169	46	18

The detachments made from the 1st and 5th armies to the 3rd are indicated in the foregoing table. The further detachments are not, although included in the numbers of units, available.

From the 1st army, 2 squadrons to Crete.

From the 5th army, 5 battalions to Crete, 1 battalion to Tripoli, 1 battery to the 7th army, and 3 squadrons to Hedjar.

The troops in the 7th army region (Yemen) are not recruited in that region, but from men drawn from different districts further North. On account of its unfavourable climatic conditions the period of active service there is reduced to two years.

Although there is in the arsenal at Constantinople a supply of the Mauser magazine rifle (9.5 mm.) and of the small bore rifle (7.65 mm.), none were issued to the troops during 1894.

INFANTRY TACTICS, 1894.

The practical outcome of more recent tendencies to modification in the tactics of infantry is to be found in the new editions of the French infantry drill regulations and of the German field service regulations. Both will be discussed more closely in another place. It is sufficient here to observe that the French regulations give effect to the general feeling that has long existed against the exaggerated application of fighting in deep formation, in so far as they are opposed to the system of *petits paquets*, that is, of numerous small supports behind the firing line. This is not in itself of much importance, but it is an indication that here and there the theory of formation in depth is being seriously approached, from the practical standpoint of the effect of fire and what appertains thereto.

There can, indeed, be no doubt that the tactical considerations in the matter of formation in depth, as they are almost exclusively expressed in the regulations for the infantry, belong in the main to the times of the Napoleonic wars, and therefore of the smooth-bore muzzle-loader, when, after the musketry fight had burnt itself out, the final decision was generally effected by the action of the reserves, rather than to the times of the small-bore repeating rifle, where the fire effect of masses, dissolved into swarms of riflemen, induces the decision.

The development of modern methods of fighting will, consequently, again approach in many respects more nearly to the procedure of linear tactics, which depended for success on fire-effect alone; it knew nothing of the offensive action of masses, or, consequently, of fighting in depth, for the formation of two lines, of which the second was often not half the strength of the first, and was also brought forward early into it, cannot be regarded as fighting in deep formations as it is now understood, when on an average four to five successive echelons are provided.

Linear tactics gave way eventually before the skilful combination of fire-effect with the action of deep columns; but only because, in the first place, the skirmisher fire proved superior to the fire of the line; and, in the second place, because the small effect of long-range fire allowed the reserves to be held in readiness in such close proximity to the firing line that they could be brought into action immediately and relatively unweakened.

This is, however, at the present time prevented by the enormously increased effects of distant and rapid fire, so that in the same manner as, owing to the increased effect of fire, the broad fronts of the fighting lines of the 18th century, representative of fire tactics, were developed from the deep masses of the 16th and 17th centuries; so in the present, again owing

to increased effect of fire, it is imperative to avoid as much as possible deep masses (echelons, lines, reserves), in order to utilise their fire power as early and as simultaneously as possible. The formal distinction between the fire tactics of last century and of the next will lie mainly in this, that then the fighting took place in cohesive lines; whereas in the future it will be in loose lines, or swarms of shooters.

Whoever is acquainted with the history of infantry tactics knows also that the transition from the masses of the 16th century to the brigades of Gustavus Adolphus, and these again to the thin firing lines of Frederick the Great, was comparatively slow. He will, therefore, not be astonished if a comparatively long time is occupied in passing from Napoleon's mixed battalions (few shooters and many columns), by the company columns of the present day (many shooters and few columns), before the fighting formation of the future, that is, linear swarms of shooters, is reached.

The points which will, according to the so-called reformers, have to be adopted in the future may be stated broadly as follows:—In the first place, uniformly led and simultaneously active firing lines. But the uniformity in leading and the simultaneousness of action can only be aimed at as the result of a fixed organisation of the tactical procedure, as well within the division as in the actual fighting bodies. That is to say, the tactical action of these bodies must be organised on certain principles and not improvised for the occasion. The tactical improvisation which was possible with the comparatively small armies of Frederick the Great's time, and in part also at the time of Napoleon, is with the present large armies and short service dangerous, and therefore to be avoided. The so-called tactical "elbow-room," which at the present time plays so great a part in the infantry fight, should for these reasons be restricted to such a degree as to allow only of the skilful employment of fire, always keeping in view that this fire must be brought to bear so as to produce a uniformly concentrated effect. Everything else must be subordinated to this principle.

It is a mechanical condition of the execution of this principle, that the advance preceding an engagement should be made in formations which will admit, as far as possible, of simultaneous deployment; consequently deep columns with small heads will disappear.

The successive placing of the troops in the actual fighting front will cease as far as practicable, and, therefore, the troops must be deployed before coming within the sphere of the enemy's fire. As in a battle—and on this the entire tactical procedure of the infantry must be based—the area of operations for the several bodies follows of itself, and thus also their direction, so also follows the extent of the fighting front of the advanced firing line, so that the divisional commander is in a position to superintend and decide how many units are necessary for the occupation of this fighting front from the first with broadly extended lines of advancing skirmishers.

Only when this deployment of the force has been effected in appropriate formations on the initial line, should the advance of the bulk

of the infantry be commenced, as far as possible, simultaneously, and with definite local objectives to march on; whereas, the artillery will have previously taken up their position protected by advanced infantry. In certain circumstances the artillery will only commence the forward movement simultaneously with the bulk of the infantry.

By this means certain distances naturally result between the different echelons, and a proportionate reinforcement of the entire firing line. This is of the greatest value, for by means of it is secured the continuous development of a powerful, concentrated fire as a condition for superiority of fire itself, and—what is the main point—the only effective basis is created for the delivery of a united assault with full force.

The hostile objections to this transference of certain principles of linear tactics to the present time are based chiefly on the diversity of ground, on the diversity of local objects of attack, of local resistance, etc. On the other side it may be answered that admitting the justice of these arguments, they can never be dissociated from the tactical principle admitted for thousands of years, that united concentrated force is under all circumstances more effective than dispersed force. This applies equally to the attack and the defence.

Lastly, it must not be overlooked that there is no obstacle, whether in the way of the defence or of the attack, which cannot be more easily and surely surmounted by concentrated united tactical action than by action less concentrated and less united.

Why, then, is this advantage, which remains such in all circumstances, to be voluntarily abandoned or restricted at will to a procedure which, though it may be of tactical benefit here and there, cannot be supported by the general results of tactical experiences and of the events of military history?

In the latter direction three works have appeared during 1894, which, resting on a firm foundation of military history, have for their object to make the events and the analysis of these events speak for them. They are "*Kriegslehren in kriegsgeschichtlichen Lehren der Neuzeit*," 1st and 2nd parts, by General von Scherff, and "*Taktik der Zukunft*," 4th edition, by Captain Hoenig. It is to be noticed that although entertaining different opinions in the matter of a formal procedure as applied to the attack of infantry, they are both nearly agreed in their judgment in condemnation of the manner in which the infantry attack of large bodies was generally undertaken and carried out in the War of 1870-71.

It would show a certain onesidedness if a work by the Russian General von Woide, "*Die Ursachen der Siege und Niederlagen im Kriege 1870-71*," were not to be noticed. The adherents of the "uncontrolled tactical procedure" deduce from it a support for their mode of view, for the great and often decisive importance of initiative on the result of the War of 1870-71 is pointed out and dwelt on. But initiative and independence are military qualities which at all times have been superior to passiveness and indecision; and this has really nothing to do with tactical procedure in itself, nor has it been first evidenced by the War of 1870-71. Daring and self-confidence have always been demanded

in a good soldier as the qualifications of a leader; but the greatest commanders and the most experienced soldiers have not forgotten to give a fixed binding form to the fighting formations as well as to the handling of these (the leading), and to facilitate the carrying through of the fight by aiming at making the action as united as possible.

The initiative must extend from above, it must pervade the entire military hierarchy down to the common soldier, in the form of, or spirit of, offensive and daring; but it must be bound, by means of tactical procedure, in as firm a frame as possible, within which personal determination still affords a wide field of action, and will always continue to do so. But the impulse to action in war can naturally only be given by him who knows the object he wishes to attain and the means at his disposal for the purpose; and not by anyone who can only see what is in his immediate vicinity, and not the whole. Greater care then should be taken in the employment of the word "initiative" as a tactical expression. Generally, the meaning it is intended to convey is only an ordinary tactical obligation, it is the self-intelligible endeavour to convert the practical considerations on the battle-field into deeds, according to the immediate situation and the objective, without losing sight of the general situation.

A just estimate of the true tactical value of the initiative may be derived from these limitations. A correspondingly moderate appreciation can only lead to the prevention of exaggerations and illusions, which have undoubtedly made their appearance latterly in this tactical question, and which, if transferred to the battle-field, must lead to serious disabuse if opposed to an enemy who holds strongly against compromising the combined action of his forces by tactical habitudes which might find a place in detachment warfare, but not in a ranged battle.

In connection with what has been said regarding the combined action of a force and the unity of its tactical handling, the objection may be made that everyone is agreed as to their value, and that every intelligent leader endeavours already to adopt the tactical procedure of a division, as it has here been indicated. But this conclusion appears only to be academically true, indeed many will regard it as a fallacious one, and an endeavour will be made to prove the proposition more thoroughly by a reference to a concrete case—for in this seem to lie the decisive points in the shaping of tactical procedure, and in connection with it for the conduct of the fight itself.

A divisional commander, fully convinced of the value of the united, and, as far as possible, of the simultaneous course of conduct in action, gifted with distinguished military qualities, is firmly resolved to employ his division "as a whole" and not broken up. But difficulties will arise in putting his resolve into execution, which it is not in his power to overcome, because they have their origin in the general tactical appreciation, and consequently have found expression in the regulations.

Of these, there is first the prevalent advanced-guard theory, springing from the idea that the advanced guard must gain intelligence, feel the way, and, lastly, cover the deployment of the main body. So long as this theory is conventional, as it is at the present time, its advantages

and disadvantages may about counterbalance one another in the case of an engagement, that results from the meeting of opposing forces, both of which are on the march. But the disadvantages outweigh the advantages for the attacked when the enemy is assembled—as will almost always be the case on the defensive—or even when meeting on the march, if the enemy in their distribution shall have departed from the conventional form.

To take the first case, our division comes upon the enemy apparently prepared for defence, and the divisional commander, avoiding all hurry, gives the order to the advanced guard to act discreetly and avoid all fighting. In the most favourable case, the advanced-guard commander on this does nothing; that is, he forms his advanced guard up under cover, and if he be a particularly sensible man he will forbid any firing, especially by his artillery, which is at the present time allotted to every advanced guard in the strength of from one to three batteries, in accordance with the conventional idea. But even this discretion will not save him from sensible damage if the enemy should understand his business and fall upon the advanced guard with his united forces before—thanks to the usual distances and march formations—the main body is in a position to act effectively.

But in most cases the advanced guard (judging by the war experiences from 1870 to 1895 and by the peace exercises of all armies) will commence an engagement, above all bringing its artillery fire to bear, and often, animated by a false idea of initiative, push forward to gain some local advantage. Thus the fight may be engaged on lines not agreeable to the divisional commander, which render difficult if not impossible the united employment of the division, because the advanced guard must be helped, and this, looking to the conventional march formations, can only be effected by dribbles.

To take the other case of the forces meeting on the march, the supposed careful divisional commander will, with the present distribution on the march, not be able from the outset to quietly deploy the division and employ it united, unless the enemy has also followed the conventional distribution; that is to say, if he has renounced the deep march formations (following General Lewal's system) or has only employed an advanced guard that is strong in cavalry and quite weak in infantry, which would enable him to undertake a united attack earlier than our division. The latter will by this be at least deprived of the lead as regards attack, and so lose an important chance of success.

Further, the tendency almost universally adopted of fighting in depth, will not only make it more difficult to advance simultaneously a thick, connected firing line, capable of an overpowering fire action; but from the formation of many lines inseparable from this tendency will also increase the difficulty of forming a relatively strong general reserve with which to strike the decisive blow.

If to this be added that the habitudes of detachment warfare, which in most armies give the measure of the tactical training both of the leaders and the troops, only partially meet the demands of the pitched

battle, it cannot be denied that the unity in handling even a proportionately small body, such as a division, can only be maintained under difficulties, looking to the present position of the theory in regard to fighting. But it should and must be the main task of tactical instruction and training to minimise rather than to increase the great friction already existing on the battle-field.

Those who recognise in the points that have been discussed a strengthening of the elements of friction which must be overcome by tactical means, desire a more fixed tactical procedure, not as an object in itself, but rather as a formal means towards attaining more simply and, consequently, more surely the tactical object. The opponents of this view do not deny in principle that one of the main conditions of tactical success is to be found in the united action of mass fire and mass shock; but, on the other hand, they maintain that in the face of modern fire-arms the eventual tactical results to be sought are not to be achieved by the adoption from the outset of a more closely united and, consequently, more uniformly operating tactical procedure. They think to be able to achieve it by means of tactical looseness, which individualises equally every tactical unit down to the company inclusive, by the help of the most painstaking use of ground and the successive increase of tactical individual result. The formal point of support of this view is the so-called company column tactics and acting on general instructions, for, naturally, tactical looseness lends itself less to a more distinct and frequent employment of orders. One may think as one will regarding "orders" and "instructions," and may be of the opinion that the modern fight does not admit of orders being employed to the same degree as formerly. Up to a certain point this view is quite justified, but it will not be contested that unity in the conduct of a fight is in direct connection with the more or less definite form of the directions.

Germany.

During the past year there have been no formal changes in the tactics of the infantry. The German Infantry Drill Book in its second part (the fight) allows of great latitude in the execution of the infantry engagement, and it has lately become evident that this is being taken advantage of in the direction of adopting a stiffer and closer procedure rather than of further developing tactical independence, as is emphasised by the regulations.

This is the case in practice as well in theory. At manœuvres it is much more usual than formerly to see the purely frontal attack of regiments and brigades. In such a case the initiative of subordinates is more restricted, and will partially even be altogether suspended. But this must also be the case in a pitched battle, for when army corps stand side by side in definitely limited areas the initiative comes naturally and quickly to an end, even in the case of divisional and brigade commanders.

The only new regulations of importance affecting the infantry are a new edition of the "Felddienst-Ordnung" and the "Feldpionier-Vorschrift für die Infanterie."

France.

The event of greatest interest tactically was the issue of a new Infantry Drill Book, or rather of the previously existing one (1884) with necessary alterations and additions.

The fighting formation of the infantry, as indicated in it, has been materially simplified, and consists of scouts, a fighting line, and a reserve; the previously existing supports are no longer provided for. The scouts, in the proportion of 16 per company in peace and 32 in war, precede the fighting line by about 500 metres in open ground; their mission is to drive back the enemy's advanced troops, reconnoitre his position, and eventually serve as a framework to mark the fighting front.

The companies of the fighting line march at first in small bodies (section or company columns), then in deployed line with open files, and lastly in rank entire. The reserve follows at 500 metres; if it has to reinforce the fighting line, it moves up into the firing line in rank entire or with opened file.

As in the Russian and Austrian Armies great value is attributed to volley firing; it is to be employed at about 800 metres against groups, at 1,000 metres against lines of the strength of a half-section, at 1,500 metres at long lines, pelotons, company columns, or artillery, and at 2,000 metres against marching columns. Independent fire is only to be used at quite short ranges, and rapid fire only in decisive moments.

TACTICS OF CAVALRY.

The recognition of the possibility of the successful co-operation of cavalry in battle continues to extend and will gain still further ground through Major Kunz's admirable book, "*Die deutsche Reiterei in den Schlachten und Gefechten des Krieges von 1870-71.*"

Two points seem particularly worthy of attention. It seems that in peace manoeuvres the cavalry render their task easier than it would be in war by frequently taking up positions in which they could not remain in war. It is then not difficult to act from a *short* distance at the right moment. The great difficulty in leading cavalry is to move it over a distance of several kilometres so as to bring it into collision with the enemy at the right moment; and it is to be observed that to arrive too soon may lead to the destruction of the regiments concerned. More regard should therefore be taken of the enemy's fire during the long stationary period.

Attacks by one squadron or a few squadrons on whole battalions are not to be too often seen. As a rule, no lasting result is to be anticipated from this, and they would be more usefully employed in scouting.

If masses are in question, it should be considered, apart from the cases in which a sacrifice is necessary, whether the anticipated results are in any way proportionate with the stake. Such consideration will occasionally prevent hasty characters from attacking intact infantry, and lead them to defer the attack until the other arms shall have sufficiently prepared for success. Even the riding down of an infantry brigade will not always compensate the expenditure of a cavalry division.

In the German Army all complaints against the arming of the cavalry with the lance have ceased; a certain advantage even has lately been claimed for the superiority of this arm in patrol duty. In France the trials with it are still being continued, and in Russia it has its advocates.

Following the example of Russia, which contemplates the strategical employment almost entirely of its whole cavalry force in front of the army, France is endeavouring to strengthen its force of this arm in the first line, whereas the infantry divisions would be provided instead with reserve cavalry formations.

The German "Meldereiter" of the future appears as a new creation, which will be copied in other armies. Austria and Russia have already made a beginning in that direction.

Germany.

Time has now been given to test the changes made in the new Cavalry Drill Book, provisionally issued in the spring of 1893 after the squadron training had already been commenced. The general opinion as regards the first part is, that the alterations in foot drill are too sweeping, and that those in mounted drill do not go far enough. The opinions against the second part are more weighty still. In it are to be found formations and movements which no cavalry commander would employ before the enemy.

It is being asked what useful purpose these can serve, and the only answer that can be given to this question is, that manœuvres and difficult movements and conversions increase the manœuvring powers of the troops. We are of opinion there are other means, and means more in accordance with service conditions, to attain this end. It is only necessary to work entirely at the gallop, even in difficult ground, and to require the leader to make his decisions while in movement. A regiment so trained, even if it knows only the simplest formations, is safer before the enemy than if it has gone forwards and backwards through the whole scale of parade movements in its own time.

Next to the new cavalry drill in interest for cavalymen comes the memoir of General von Pelet-Narbonne, "Ueber Erziehung und Führung von Kavallerie, sowie Uebungen gemischter Truppen im Gelände." Space will only admit of brief references being made to those parts of this valuable work which deal with important questions of the day. In the first place, it is shown that the drill of a cavalry division in the formations indicated in the regulations is the first step in its training. This is necessary under the simple conditions of the drill ground in order to create a proper understanding between the leaders themselves, to arrange the communication of orders on proper lines, and to exercise the division particularly as a united whole in riding against a cavalry opponent. This exercise will not be the less necessary that ground is not often available in which entire divisions can be fully deployed and manœuvred. The division exercised in this manner can then complete its training in varied ground by daily-changing schemes against an actual enemy of all arms.

The demand made by General von Pelet-Narbonne for a general introduction of strategical reconnaissance exercises is new and promising. Two happily-chosen examples of such exercises given are calculated to show the scope of the proposal, and to excite interest in it.

More important than all is the fact that the discussion of the question of the organisation of cavalry divisions in peace-time is re-opened. For it is not a new question ; but, though frequently raised, it has in former years always been adversely decided. The times are now changed. Our neighbours, without our lead, have not only formed cavalry divisions, but keep them as ready to march as practicable on our frontiers. And further, general opinion has recognised the value of cavalry in future battles, provided it is forthcoming in sufficiently large bodies. Finally, it has been accepted that in the strategical reconnaissance a first victory over the enemy's squadrons will admit of the cavalry carrying out their task, and that the initiative is only possible in the plan of campaign in the steps of a victorious cavalry.

If we are to expect the cavalry to achieve important first successes in front of the army a few days after the order to mobilise, and to see it attack with success in battle, it would seem rash to improvise its divisions from beginning to end at the last moment.

Russia.

For the time the point of principal interest in Russia is the employment of masses in battle. The conviction fostered by many manœuvres, and also by verbal expressions of the effect of large cavalry corps, seems to be general. It is supported by the innate belief of the Russians in the irresistibility of their superior numbers. The formal formation of a cavalry corps of three divisions under the command of the celebrated cavalry general, Bodisko, with its own staff, in the Warsaw military district, speaks in itself for the view held as to the importance of masses.

In the Wilna military district a similar force was brought together temporarily at Orany for a week's exercises. The three divisions together amounted to a strength of 76 squadrons, with 36 guns.

FIELD-ARTILLERY TACTICS.

The important question of the armament of the field artillery in the future has not yet been definitely settled ; but views on the subject have become more and more clear. It may now be asserted that the field gun of the future will by no means be a small calibre Q.F. gun with little effect from the single shot. The trials held in various countries have been enveloped in an impenetrable cloud ; but the military periodical literature, which affords a pretty true representation of general opinion, has during the year not been favourable to the light field Q.F. gun.

Every State is busied with the re-armament of the field artillery ; none likes to make the first move, but all are making preparations for the introduction of an improved pattern in the event of anyone of them taking the initiative.

The question whether the best advantage is to be derived from direct or indirect fire, so happily solved by the German Field Artillery Drill Book, has been much discussed in the periodical literature. The German regulations (page 276) lay down the principle, that direct aiming continues to be the greatest desideratum in the selection of the artillery position. This alone does not in itself warrant the conclusion that direct fire has the advantage over indirect fire, but on page 274 this is distinctly expressed. Indirect fire is restricted to the cases in which the ground or the situation does not admit of direct fire being employed. Notwithstanding this, much has been said on behalf of indirect fire. In this view it is assumed that artillery can shoot as well indirectly as directly, but that with direct fire such losses will be incurred as must within a short period of time result in incapacity for further action. There is a mixture here of the true and the false. It is correct that a well-trained battery, under an able leader, will be able to shoot really well indirectly; but this does not mean that it will shoot equally well, or even better, indirectly than directly. The experiences of the practice ground prove little; for there only a single battery fires indirectly, and even if, exceptionally, a battery formed as part of an artillery division has to fire indirectly, the task is so arranged as not to offer too great difficulties. The difficult point in indirect fire lies essentially in the observation, especially of lateral deviation. So long as one battery only is firing, the difficulty does not really arise, for every burst will be due to projectiles fired by it. But the moment there are several batteries firing together it becomes very hard for the observing battery commander to distinguish the shots that fall with strong lateral deviation from those of other batteries; indeed, it may at times be said to be quite impossible. It is possible only when both the observation and direction of the fire are personally conducted by the battery commander.

In our opinion, the German regulations indicate the only right course. When the conditions do not necessitate the employment of indirect fire, preference should be given unreservedly to direct fire. But as circumstances may, against our will, force us to use indirect fire, we must make ourselves thoroughly familiar with it and practise it in peace-time. The main consideration in a fire position is view; after that only is the endeavour to obtain cover from the enemy's view legitimate. To do so it is not necessary to creep up behind ridges or hedges; with smokeless powder even small bushes, etc., between which the guns are placed, offer an excellent screen.

A third question that has been much discussed is that of the employment of horse artillery in combination with cavalry. This refers especially to the preparation of the attack against cavalry, for as regards the great value of the employment of horse artillery in reconnaissance service there can scarcely be two opinions. Since the appearance of von Hoffbauer's and von Schell's works on the subject, eighteen and fifteen years ago respectively, this question has not been so thoroughly gone into as it has in the past year in the *Journal des Sciences Militaires* and the *Revue Militaire Belge*.

The writer of the paper in the *Journal* starts from the principle that the batteries allotted to the cavalry division must remain united, and can only come into action on one flank of the division. This view will be generally accepted, though in hilly ground that favours firing over one's own troops, a position behind the division might be thought of. The position should be about 500 metres to 700 metres from the line on which the collision of the cavalry is to be anticipated, and so far to the flank that the division will not be interfered with in its deployment, therefore, about 200 to 250 metres.

The position must be so chosen that it can be taken up as early as possible; if the two lines of advance of the cavalry form an angle, the artillery position should be preferably inside this angle.

By this means the artillery will interfere as little as possible with the movements of its cavalry, it remains in the closest connection with it and is itself sufficiently protected by its situation; from thence it can take the enemy's lines in flank and continue its fire up to the latest moment without being masked.

Everything depends upon the artillery reaching this position at the right time. As they can only occupy it when the divisional commander gives the order to attack, only a few minutes will be available for the purpose. Consequently, the artillery must be already in preparatory formation at a spot as close as possible to the contemplated position; otherwise it cannot be practicable to open fire at the right moment.

If the place accorded to the artillery is 300 to 400 metres before the front, and 200 to 250 metres to one side of it, it will have only about 600 metres to pass over to reach the fire position, and will be able to open fire within about $2\frac{1}{2}$ minutes from the order being given. The artillery should conform to any movements of the division in preparatory formation, in such a manner as to admit of it participating in the engagement at any moment.

The place thus indicated for the artillery has the advantage that the spheres of action for the artillery and cavalry are separated, so neither arm runs the risk of being impeded by the other, and each one can be utilised as long as possible.

The artillery is there also sufficiently protected, for the entire division is in a position to act at any moment. Patrols to its front and outer flank, as well as a special escort, take sufficient care for its safety. But, even if the position should be somewhat exposed, there must not be any hesitation in taking it up, for there are no other means of ensuring the timely intervention of the artillery in the engagement. The artillery is always the prey of the victor; it best cares, therefore, for its own safety by contributing to the extent of its powers to the victory of its cavalry.

Looking to the short duration of the cavalry engagement, it cannot be the task of the artillery to cause great losses to the enemy, it must rather endeavour to bring the enemy temporarily into an unfavourable condition, which must be utilised by the cavalry leader. This can be done equally by means of an effective fire, or by drawing away on itself part of the enemy's force. An artillery division can only be endangered by a pretty

strong body of cavalry, the withdrawal of which from the attack may be of decisive importance for the result.

The commander of the artillery is always with the divisional commander ready to receive his orders. In cavalry engagements so much of the unforeseen occurs, that the procedure of the artillery can never be definitely laid down beforehand. If this close connection is not maintained, either the artillery will receive their orders too late or not at all. An order may deliver them incomplete or incorrect. And further, between the time an order is given and that at which it is received, the situation may have so changed that it will no longer apply. The distance of 300 to 400 metres in front and 200 to 250 metres to a flank of the first line is sufficient not to impede the freedom of movement of the division, and yet not too great, so that all orders can arrive at the right time. Also the artillery can conform easily to all changes in formation and in direction. The cavalry can, therefore, manœuvre without regarding the artillery, and can at the same time count upon finding it ready to participate in the engagement at the right place. The distances will naturally vary somewhat according to circumstances; in covered and difficult ground they will generally be rather less; in open, clear ground rather greater.

The separation of the artillery from the main body of the division is only justified in exceptional cases. It is generally not expedient to attach artillery to the advanced guard. This could only be permissible in the case of it being required to push artillery rapidly forward into a position with a special object. But in that case the advanced guard would be really converted into an independent detachment; its own proper task is observation and security, in which the artillery cannot participate. Artillery attached to an advanced guard must either fall back with it on the division, in which case the advance secured has to be abandoned again, or it will open fire prematurely and without having a knowledge of the divisional commander's intentions, and so force him perhaps to enter into an engagement under unfavourable conditions.

Exactly similar grounds exist for not sending artillery forward too early into an intended position. In a cavalry engagement the considerations that usually decide the choice of an artillery position are not applicable; here it is only a question of commanding the field of attack by fire. A position then, however excellent from a topographical point of view, is of value only if the engagement comes off in a certain definite manner. But as this depends half upon the enemy, things may result quite differently from what has been anticipated. It is, therefore, generally a mistake to assign a definite position to the artillery too early.

Germany.

At the field artillery practice last year, the new shrapnel (C/91), which unites in itself the advantages of shell and shrapnel, was used by the troops for the first time, as also was the high-explosive shell with white smoke. Both projectiles facilitate the shooting, for a change of projectile is not necessary after determining the range.

France.

Following the example of Germany, the number of horse artillery batteries has been reduced from three to two. This measure is differently viewed by the French military press. In Germany opinions are also very divided on the subject of the number of batteries it is desirable to have with a cavalry division. Immediately after the War of 1870-71, three batteries were always allotted to cavalry divisions for their exercises. Later on the number sank to two, and finally there have not been wanting those who say that one battery is enough, and more than enough. Now, as is known, a division of two batteries is allotted for this service. On the other hand, men like Prince Hohenlohe, von Scherff, von Schell, have declared three batteries to be necessary, and also it may be deduced from von Verdy's classical studies in the leading of troops that two batteries are not sufficient for the reconnoitring duties, for in the course of the operations of a cavalry division furnished with two horse artillery batteries a field artillery battery is added to them.

For the actual cavalry fight 12 guns are, in the opinion of the writer, rather too many than too few; for it is only in the rarest cases that they are able to do anything. The real object in attaching horse artillery to cavalry divisions is to act as a support in their reconnaissance service, especially in actions for localities. But as the brigades may very well be sent by different routes, and it can never be known with certainty where hostile artillery may be encountered, the distribution at the rate of one battery per brigade would seem to be the best. That three batteries of six guns, together about 60 vehicles, for a cavalry division of 3,600 horses, is an impediment to movement is recognised; but looking to the rapidity of fire and effect of the modern gun, there is the alternative of reducing the number of guns in the battery to four. We should decidedly prefer to have with a cavalry division three batteries of four guns rather than two batteries of six guns, and the ammunition wagons might be still further reduced.

NAVAL AND MILITARY NOTES.

NAVAL.

HOME.—The following are the principal appointments which have been made: Captains—T. MacGill to "Phoebe"; W. Browne to "Ringarooma"; J. Durnford, D.S.O., to "Vernon"; E. Jeffreys to "Excellent"; J. P. Pilon, C.M.G., to President for Royal Naval College; A. Prothero to "Flora"; A. Bromley to "Blake"; A. Barrow to "Majestic"; C. J. Barlow, D.S.O., to "Magnificent"; R. F. Henderson, C.B., to "Royal Sovereign"; A. MacLeod to "Empress of India"; Sir B. W. Walker, Bart., C.M.G., Assistant Director of Torpedoes; J. T. Burke, Inspector of War-like Stores. Commanders—E. P. Ashe to "Basilisk"; L. G. Tufnell to "Victory" for charge of Signal School; L. Barnes-Lawrence to "Rupert"; P. W. Bush to "Bellona"; H. Warren to "Polyphemus"; J. Casement to "Rapid."

The new first class battle-ships "Majestic" and "Magnificent" were commissioned on the 12th inst. as the flag-ships of the Commander-in-Chief and the Rear-Admiral second in command in the Channel, respectively, the officers and men turning over to them from the "Royal Sovereign" and "Empress of India," which latter ships were in turn re-commissioned for service with the same squadron, thus bringing it up to its full strength of six battle-ships, a strength which it has not reached for many years past. The first class cruiser "Endymion," now in the Channel Squadron, is to be paid off on the 16th inst., and her officers and men transferred to the first class cruiser "Blake," a sister-ship to the "Blenheim," the other first class cruiser attached to the squadron.

The "Blake," which has had her boilers refitted with double-combustion chambers in the place of the old single ones and retubed and fitted with Admiralty pattern ferrules, has lately been undergoing a series of steam trials. The mean results for a four hours' trial were:—With a steam pressure of 147 lbs. per square inch, maintained with an air-pressure in the stokeholds equal to 2·3 inches of water, the I.H.P. developed by the starboard engines was 9,711 and by the port engines 9,868, or a total of 19,579; the best half-hour giving an I.P. of 20,132 horses, with a resulting mean speed of ship of 21·5 knots, which is considered very satisfactory, the original specified I.H.P. of 20,000 having been easily maintained.

The torpedo-boat destroyer "Lightning," recently delivered at Chatham by Palmers Shipbuilding Company, Jarrow, has completed her official trials in a very satisfactory manner. The contract called for a speed of 27 knots per hour maintained for three consecutive hours, and this the builders have exceeded by practically 1 knot per hour. The average for the three hours gave 27·944 knots per hour. In the best of the runs over the Maplin, the "Lightning" passed the mile posts in 1 minute 55 seconds, being equal to 31·3 knots, or over 36 miles per hour. She had all her weights on board, being loaded down to contract conditions. The entire absence of flame from the funnels and the absolute freedom from vibration, which made her sister-ship the "Janus" (also Palmers' build) so conspicuous, were just as marked in the case of the "Lightning." These vessels show that it is quite possible to attain such high speeds without, as has generally been assumed, the above objectionable features being a necessary accompaniment. The "Lightning" is a duplicate of the "Janus," the propelling machinery consisting of two sets of three-cylinder triple-expansion engines driving aluminium bronze propellers, and supplied with steam by four of Reed's patent

water-tube boilers. The whole result was obtained with the greatest of ease, and the working of machinery, also the steaming of the boilers, was all that could be desired. The amount of coal consumed during the three hours was 14 tons, which is believed to be lower than for any of the torpedo-boat destroyers delivered to the Government. The steam pressure during the trial averaged 195 lbs. per square inch, and the average revolutions 368 per minute. It may also be stated that the "Lightning," on her run round from the Tyne, occupied only about 13½ hours to cover the distance, running about 20 to 21 knots practically under natural draught.

According to the *Naval and Military Record*, In constructing war-ships in future salvage pipes are to be laid from the main, or upper deck, to the main suction pipe, with the view of pumping out a ship that has gone to the bottom, and so enabling her to float by means of her own buoyancy. The exact details of the innovation have yet to be worked out; but the principle involved is an excellent one. If a ship has gone down the hose will be run from the fire-floats, or whatever agency is employed, to the deck plate of the ship, and there communicate with the salvage pipe. If a ship, like the "Sultan," had a carriage way driven into her side, the damaged compartments would, of course, be ignored, but where undamaged compartments are filled with water, a diver would go down, close the doors, fix the hose, and the pumps on the surface would be set to work. As often as not, when a vessel sinks, the main suction pipe, being near the double bottom, is itself rendered absolutely useless, but where it remains intact, and the hull itself is sufficiently whole to admit water to only a limited area, the chances in favour of salving a ship are sufficiently great to justify the experiment. Instances may, of course, occur, as in the case of the "Victoria," where the ship sinks at such a depth as to be unapproachable by divers; but had there been salvage pipes in the "Sultan" when she sank in the Comino Channel, or in the "Howe" when she came to grief at Ferrol, the operations would have been greatly simplified. At all events, the Admiralty are sufficiently convinced of the value of the new fitting to have decided upon its adoption.

In order that the new second class cruiser "Arrogant," building at Devonport, may be completed for sea by March, 1897—the date fixed by the Admiralty—it had been found necessary to largely reduce the number of men working on her sister-ship, the "Furious." The protective deck of the "Arrogant" is, perhaps, the most important of the many new features to be introduced into this type of vessel. The deck, which extends from the stem to the after part of the machinery space, will be, in accordance with the usual method of construction now adopted, "turtle-backed," and consists of two thicknesses of steel plates. The bottom thickness will be of 1-inch hardened steel plating throughout, but the top layer will consist of specially prepared nickel steel plates, varying in thickness from half-an-inch to 2 inches. The nickel plates average 15 feet in length by 3 feet in width. About 130 plates will be used for the deck, and although experiments have been made at the several Dockyards to fuse the holes in armour plates, it has been arranged that the "Arrogant's" plates shall be drilled by the new drilling machinery recently supplied to the Dockyard.

The three first class cruisers for the building of which by contract provision was made in the Navy Estimates for the current financial year have now been ordered by the Board of Admiralty. One of them, the "Europa," is to be constructed by Messrs. J. and G. Thomson, Limited, Clydebank; a second, the "Niobe," by the Naval Construction and Armaments Company, Limited, Barrow-in-Furness; and the third, the "Diadem," by the Fairfield Shipbuilding and Engineering Company, Limited, Govan; a fourth, the "Andromeda," is being constructed at Pembroke Dockyard. Their dimensions are to be as follows:—Length, 435 feet; beam, 69 feet; and depth, 39 feet 10¾ inches. The displacement at 25 feet 3 inches draught is designed to be 11,000 tons. The ships are to

be built of steel, and to have sheathing of teak and copper; they will also be fitted with bilge keels. The protective deck will be of 4 inches thickness, arching from 6 feet below the normal water-line at the sides to 3 feet 6 inches above it at the middle line of the ship, the part in way of engines and boilers to be further carried up to the level of the tops of the engines' cylinders. They are to be armed with sixteen 6-inch, fourteen 12-pounder, and twelve 3-pounder guns, all quick-firers. There will be two tubes, for the discharge of torpedoes in the submerged part of the ship and one above water at the stern. In the disposition of the armament two of the 6-inch guns will be placed on the forecastle and one on the upper deck aft, each being protected by shields. The remaining twelve guns will be arranged in armoured casemates on the broadside, four being adapted for firing right ahead and four for firing right astern. The ships will have two masts—the foremast fitted with two military tops, each armed with 3-pounder guns, and the mainmast with one top, armed with one 3-pounder gun. The machinery, which is to develop 16,500-I.H.P. under natural draught, and 20,000-I.H.P. under forced draught, giving a speed of 21 and 22 knots respectively, is of the triple-expansion type, but with four cylinders, as in the "Terrible" and "Powerful." The diameter of the four cylinders is to be 34 inches, 55½ inches, 64 inches, and 64 inches, with a stroke of 48 inches, and the piston speed is to be 880 feet per minute. Steam is to be supplied by thirty water-tube boilers of the Belleville type, the heating surface of these being about 46,000 square feet and the grate area 1,450 square feet. The pressure at the boilers will be 300 lbs. and at the engine-room 250 lbs. to the square inch.

As the result of a series of exhaustive trials of aluminium torpedo-tubes in the torpedo-boat destroyer "Boxer," it has been found that there was so much erosion, due to the action of the powder gases and salt water, that the tubes could not be relied upon for endurance.

The new first class battle-ship "Jupiter" was successfully launched on the 18th ult. from the shipbuilding yard of Messrs. James and George Thomson Limited, at Clydebank, Glasgow. The christening ceremony was performed by Miss Balfour, sister of the First Lord of the Treasury. The "Jupiter" is a first class battle-ship of the "Majestic" class. Her dimensions are:—Length between perpendiculars, 390 feet; breadth (extreme), 75 feet 9 inches; depth (moulded) from upper deck, 44 feet 9 inches; mean draught, 27 feet 6 inches; displacement, 14,900 tons. The protection consists of an armoured belt of Harveyized steel 9 inches in thickness, which extends for 215 feet; at the ends are transverse armour bulkheads, also of Harveyized armour, the lower part 12 inches and the upper 9 inches thick; and in addition there is a protective deck of from 3 inches to 4 inches in thickness, extending from end to end of the ship. The "Jupiter" is the largest and heaviest war-ship ever launched on the Clyde. The engines of the vessel are of the vertical, inverted, triple-expansion type. The collective H.P. is estimated to be 12,000, which will give a speed of about 18½ knots on trial. The boilers, of which there are eight, are of the ordinary single-ended return-tube type. The launching weight of the "Jupiter" was 7,000 tons.

The first of two second class cruisers building at Barrow for the Navy was launched from the yard of the Naval Construction and Armaments Company on Saturday, 16th ult., in the presence of a large gathering. The vessel received the name of "Juno" at the hands of Lady Evelyn Cavendish, wife of Mr. Victor Cavendish, M.P. The vessel is 350 feet long, 54 feet extreme breadth, 20 feet 6 inches mean load draught, and 5,600 tons displacement. The principal machinery consists of two sets of inverted, direct-acting engines, of 9,600-I.H.P., in separate watertight compartments. There are eight main boilers. The hull is constructed throughout of steel, and as the "Juno" is intended for foreign service she has been sheathed with teak to well above the loadline, and coppered. The armament will consist of five 6-inch, six 4.7-inch, nine 12-pounder, and seven 3-pounder guns,

all Q.F., and four Maxim machine-guns. There are three torpedo-tubes, two submerged and one above water, from which the latest pattern of torpedo can be discharged.

Orders have been received at Portsmouth, Chatham, and Devonport, for four additional torpedo-boat destroyers to be commissioned at each port by a commander and three lieutenants. The boats selected for Portsmouth are the "Boxer," "Bruiser," "Daring," and "Decoy." They are to be employed in the instruction of engine-room ratings, and are to be exercised within prescribed areas at sea. The sphere of the Portsmouth vessels is to be from Shoreham to Torquay; the Devonport flotilla will cruise round the south-west, and the Chatham division round the south-east coast of England, so that a large section of the coast will be in the future constantly patrolled, as would have to be done in war-time. The vessels are to be under the control of the commander-in-chief of their respective ports, who is to use his discretion as to whether the boats shall exercise singly or in flotillas, but once a year the whole of the twelve vessels are to be exercised together.

The Admiralty have issued imperative orders to the Dockyard Authorities at Devonport that the new first class battle-ship "Renown," which has arrived there from Pembroke for completion, is to be ready for commissioning by the end of June next.

It has been definitely decided to employ the cruiser "Black Prince" at Devonport as a boys' training-ship for the Queenstown district, and no further steps are to be taken to prepare estimates for converting the "Inconstant" and "Raleigh" into training-ships. The officials at Devonport have been requested to survey the "Black Prince" and report as to the alterations necessary to fit her for her new duty, and also the estimated cost of the work. The vessel is to be taken in hand at once for work which is absolutely necessary, but minor items are to be deferred until the Admiralty have approved of the detailed programme now being prepared.—*The Times, Naval and Military Record, and Engineer.*

BRAZIL.—The turret-ship "24 de Maio," formerly known as the "Aquadaban," which was torpedoed by the "Sempao" towards the end of the Civil War last year, has arrived at Southampton, where her guns have been landed and sent to Elswick for a thorough overhaul. The ship has since left for Stettin, where she is to undergo thorough repair, including new engines and boilers, which latter, however, are to be constructed by the Forges et Chantiers de la Méditerranée at their large works at Mompenti, near Marseilles, and when finished will be forwarded to Stettin. France, England, and Germany have thus equally a share in the reconstruction of the ship.

The cruiser "Trajano" has also been sent across the Atlantic for repairs, and is expected at Toulon, where she will be taken in hand by the Forges et Chantiers de la Méditerranée at La Seyne, which recently completed the repairs of the battle-ship "Riachuelo" for the Government.

One of the new submarine-boats of the Goubet type is now ready for her trials, which will be carried out on the Seine, after which the boat, which is built in three sections, will be sent to Toulon, where it will be shipped for conveyance to Rio de Janeiro. The boat is made of bronze, 26 feet long, with an extreme beam of 5 feet 8 inches, and the sections are connected by means of screws. In the event of any accident to the electric machinery, which is of 2-H.P., there is a sort of fin-shaped scull provided on each quarter, by which the boat can be propelled and steered. For the sake of safety there is secured to the keel a 2,500-lb. weight, which in case of necessity can be instantaneously released and the boat will then immediately rise to the surface. There are special arrangements for taking in and discharging water ballast in order to alter the floating depth as required. Automatically working mechanism keeps the boat steady at the fixed depth, and with its longer axis parallel

to the surface of the water. Fifteen feet below the surface is the normal depth at which the boat is supposed to travel, but this can be altered at will. For ascertaining its position the boat is provided with a periscope, and it can be either used for discharging an auto-mobile torpedo or for damaging and disarming submarine mines.—*Mittheilungen aus dem Gebiete des Seewesens* and *Le Yacht*.

CHINA.—A new torpedo-cruiser, the "Feiying," which has been built and engined by the Vulcan Company, of Stettin, and which is of 850 tons displacement, has lately undergone a four hours' full-speed trial, on which occasion the vessel attained a speed of 22 knots an hour, with her engines developing 4,500-I.H.P. Steam for the engines is obtained from eight Yarrow water-tube boilers, having straight tubes, which on the trial easily maintained steam for the above-mentioned engine power, with an air pressure in the stokeholds equal to three-quarters of an inch of water.—*Mittheilungen aus dem Gebiete des Seewesens*.

DENMARK.—The Naval Estimates for 1896 have now been published, the ordinary charges amounting to 6,851,848 kronen (8 kronen=9 shillings), and the extraordinary to 626,200 kronen. In the ordinary votes appears a last charge of 200,000 kronen for the construction of the armoured ship "Skjöld." This ship, which is being constructed entirely of steel, is 225 feet long, with a beam of 37 feet, and with a mean draught of 13 feet has a displacement of 2,150 tons. Protection is afforded by an armour belt 9 inches thick and an armoured deck 2 inches thick. The armament will consist of one 24-centimetre (9'4-inch) gun in an 8-inch armoured turret forward and three 12-centimetre (4'7-inch) Q.F. Krupp guns in 4'2-inch armoured turrets, with four small Q.F. guns. The engines are to develop 2,200-I.H.P., giving a speed of 13 knots. It is further contemplated to lay down a smaller battle-ship of the type of the "Lindormen," of 1,500 tons, and a first vote of 200,000 kronen will be asked on her account. A sum of 180,000 kronen will be asked for the construction of two first class torpedo-boats and four vidette steam pinnaces. For repairs of ships 747,100 kronen appears in the ordinary and 116,200 kronen in the extraordinary votes. The training brig "Oernen" is to be thoroughly repaired, and the battle-ship "Hølgeland," besides receiving new boilers, is to have a 4-inch armoured deck substituted for the old 1'8-inch one; the training-corvette "Dagmar," the surveying-ship "Hauch," and the gun-boat "Falster" are also to be provided with new boilers. A sum of 98,000 kronen is required for Maxim guns, 30,000 kronen for other machine-guns, and a first vote of 50,000 kronen for Brisant shells.

For training purposes 800,000 kronen is demanded. It is proposed next year to form a training squadron of the battle-ship "Iver Hvitfeldt," a vessel of 3,290 tons, with a crew of 300 men; the protected cruiser-corvette "Valkyrien," of 2,900 tons, with a crew of 300 men; the new third class cruiser "Geiser," of 1,280 tons, with 155 men; the third class cruiser "Absalon," of 530 tons with 70 men; a steam mining-vessel, and four first class torpedo-boats. These ships will be commissioned in May, and cruise singly during June and July, but will combine and exercise as a squadron during August. The corvette "Dagmar" will be commissioned as cadet training-ship for three months, the "Oernen" as school-ship for petty officers for five months, the torpedo training-ship "Esbern Snare" for six weeks, and the "Falster" as a training-vessel for Engineers and Engine-room Ratings for five months. The third class cruiser "Heimdall" will be commissioned for fishery-protection duties among the Faroe Islands and Iceland for four months, and will then serve as a training-ship for seamen in the North Atlantic and Mediterranean for a further five months; the gun-boat "Grönsund" and surveying vessel "Hauch" will be employed for the protection of the North Sea Fisheries. A vote of 60,500 kronen is also demanded on account of the Pilot Service, which is under the Ministry of Marine.—*Neue Preussische Kreuz Zeitung*.

The Manœuvre Squadron assembled this year, on the 7th August, at Copenhagen, under the command of Rear-Admiral Kock. It consisted of the armoured ship "Odin" (flag-ship); the armoured coast-defence ship "Gorm"; the gun-boats "Grönland," "Falster," "Möen," and "Lille Belt"; the first class torpedo-boats "Delfinen" and "Svärdfisken"; ten second class torpedo-boats and four vidette-boats, together with the ships of the Training Service, the cruiser-frigate "Fyen," the cruiser-corvette "Dagmar," and the third class cruisers "Diana" and "Absalon." The manœuvres took place in the Sound, Great Belt, and Kattegatt, and lasted from the 7th August to the 20th September.—*Mittheilungen aus dem Gebiete des Seewesens.*

FRANCE.—The following are the principal promotions and appointments which have been made: Capitaine de Frégate—Belluc to Capitaine de Vaisseau. Rear-Admirals—Chauvin to Chief of the General Staff at the Ministry of Marine vice Vice-Admiral Humann; Courrejolles to be President of the Committee on Armaments vice Chauvin. Capitaines de Vaisseau—Fouque de Jonquières to "Bouvines"; Manceron to "Jemmapes"; Pissère to "Amiral-Charner"; Hennique to "Suchet." Capitaines de Frégate—de Marolles to "Lévrier"; Aubert to "Troude"; Dutheil de la Rochère to "Rance"; Savin to be Sub-Chief of the General Staff and Chief of the Naval Cabinet vice Capitaine de Vaisseau Richard.—*Le Moniteur de la Flotte.*

The French Mediterranean Squadron is unlucky; in May last the battle-ship "Amiral-Duperré" went on shore and sustained some damage in the Gulf of Juan; somewhat later the "Redoutable," another battle-ship, went on the rocks, while leaving the harbour of Toulon; and now, while manœuvring in the Gulf of Hyères, on the evening of the 13th ult., no fewer than four battle-ships of the French Active Mediterranean Squadron, including the "Formidable," the flag-ship of Vice-Admiral Gervais the Commander-in-Chief, took the ground, the other three being the "Marceau," "Courbet," and "Amiral-Baudin"; of these the "Marceau" came off almost immediately, but the "Formidable" was on shore twenty-four hours, the "Courbet" three and the "Baudin" six days before being floated; in the case of the latter ship all the coal, stores, and her secondary armament had to be removed; fortunately, none of the ships appear to have received any damage. A Court of Enquiry, composed of Vice-Admirals Rieunier (President), des Vignes, and de la Jaille, has sat in Paris, and acquitted Vice-Admiral Gervais of blame, censuring, however, Capitaine de Vaisseau Puech, the captain of the "Formidable."

The first class battle-ship "Brennus" recommenced her trials off Brest after repairs on the 5th ult. With the engines developing 6,270-I.H.P., a consumption of coal of 0.745 kilogramme per H.P. per hour, the engines making 72 revolutions, a mean speed of 14.3 knots was obtained; during a four hours' run at full speed on the 13th ult., however, the engines again broke down through the overheating of the starboard circulating pumps. It is uncertain how long the repairs will take, but it seems unlikely that she will be able to leave for the Mediterranean before the commencement of the new year; on her way round to Toulon, a twenty-four hours' run at full speed under natural draught will be carried out. The new coast-defence battle-ship "Bouvines" commissioned on the 12th inst. with a complement on the footing of *effectif d'essais*, and will shortly leave Toulon for Brest; on her arrival there Rear-Admiral Ménard, commanding the Second Division of the Squadron of the North, will hoist his flag on board her, and Vice-Admiral Régnauld de Prémèsnil, the Commander-in-Chief, will transfer his from the "Suffren" to the "Hoche," when the "Suffren" will be put out of commission. The new coast-defence battle-ship "Amiral-Tréhouart" is expected to arrive at Brest from Lorient about the middle of the present month to undergo

her trials. The military masts of the second class cruiser "Davout" are to be removed, and light signal poles substituted.

The new first class torpedo-boat "No. 187," built by M. Normand, of Havre, has completed her trials at Cherbourg, having attained a speed of 25'73 knots, or 2'73 knots in excess of that required by the contract, and the new torpedo-avis "Cassini" has attained a speed of 21 knots during a preliminary full-speed run.

The torpedo-depôt ship "Foudre" was launched on October 20th at the Chantiers de la Gironde. In tonnage she is smaller than the English "Vulcan," having a displacement of 5,875 tons against 6,620 tons of the latter; but she is 20 feet 6 inches longer, with a beam of 5 feet 6 inches less, than the English ship, her dimensions being:—Length, 370 feet 6 inches; beam, 52 feet 6 inches, with a draught of 23 feet 6 inches. There is an armoured deck, with a maximum thickness of 3'5 inches, and a considerable sub-division of the hull. The armament is to consist of ten 3'9-inch Q.F. guns, four 2'5-inch Q.F. guns, and four 1'45-inch Q.F. guns. The "Foudre" is furnished with powerful cranes for hoisting in and out the ten vidette torpedo-boats which she is to carry upon her deck. These are interesting craft, being built of aluminium. Several of them are ready or in hand, and five more are to be built in 1896. The pattern boat was constructed by Messrs. Yarrow, and attained a mean speed of 20'56 knots at the mouth of the Thames in September, 1894. She displaced 14 tons and was 62 feet 4 inches long, with a three-cylinder engine and Yarrow boilers, but was built of French materials, the metal being supplied by a company at Froges, worked into plates, etc., by M. Charpentier Page, of Valdoie, by whose works the materials of the first aluminium yacht, the "Vendénese," were furnished. The "Foudre" will have engines developing 11,400-H.P., estimated for a speed of 19 knots, and will carry 850 tons of coal.

The new second class cruiser "Du Chayla" was launched at Cherbourg on the 10th ult. She was laid down last year and forms part of the 1893 programme. It was intended to complete her in February, 1897; but, in view of the recommendation of the Budget Committee to expedite vessels in hand at the expense of the later programme, she will probably not be ready at that date. She is a sister-ship of the "Cassard" and "D'Assas," and, like them, was designed by M. L'Homme. Resembling generally the "Bugeaud," "Chasseloup-Laubat," and "Friant" type, it is expected that she will prove a better sea boat than these, which have all been found to roll heavily and knock about a good deal, as she is 16 feet longer with 1 foot 3 inches more beam. With a displacement of 3,992 tons, she is 325 feet 8 inches long between the perpendiculars, with 44 feet 10 inches beam, and has a mean draught of 19 feet. The protection of the cruiser is given by a steel curved deck, with a thickness amidships of 1'2 inch, and 3'1 inches on the slopes, and a cofferdam round the waterline filled with cellulose. The armament will consist of six 6'2-inch, four 3'9-inch, twelve 1'85-inch, and sixteen 1'45-inch Q.F. guns, with six torpedo ejectors. The two triple-expansion vertical engines, placed in three compartments, are to develop 6,000-I.H.P. under natural and 9,500-I.H.P. under forced draught, giving an extreme speed of 19 knots.

Owing to the change of Ministry in France and the accession to office as Minister of Marine of M. Lockroy, special interest attaches to the progress of the French Navy Estimates. If the retrenchments now proposed are carried into effect, only three of the twelve vessels, originally proposed in the Budget, viz., the second class battle-ship "Henri IV.," the first class armoured-cruiser "D 2," and the torpedo-avis "M 1," will now be laid down; and the building of the first class cruiser "Jeanne d'Arc," second class cruiser "Jurien de la Gravière," third class cruiser "K 3," and despatch-vessel "S 2," which were to have been built in Government yards, as well as of torpedo gun-boat "M 3," sea-going torpedo-boat "N 12," two first-class torpedo-boats, and gun-boat "T 2," which were all to have been constructed in private yards, will be postponed for another year. In order that the dockyards may be kept at their full establishment the vote for

wages stands, and it has been decided that the battle-ship "Henri IV.," and the first class cruiser "D 2," shall be built by the Government instead of being given out to contract. The idea of the Budget Committee and the Minister is to increase the productive capacity of the dockyards and hasten forward the completion of the ships in hand. Certain new chapters have, therefore, been inserted in the estimates, and larger credits, to the amount of 3,606,515 francs., chiefly on this head, are proposed to be granted than Admiral Besnard demanded. On the other hand, the retrenchments made, which are largely on account of new constructions, have the effect of reducing the estimate of 279,385,681 francs., finally presented, to 265,877,854 francs. One important result of the economies would be a reduction in the already small number of the ships on foreign stations. A credit of 300,000 francs. for the deepening of the Charente was struck out, but, the municipality of Rochefort having agreed to increase its contribution to 500,000 francs., this may be reinserted.

The Active and Reserve Mediterranean Squadrons have been constituted for the winter as follows:—

Active Squadron, Vice-Admiral Gervais in command.

First division—

Battle-ships—"Formidable" (flag-ship). "Filibustier" attendant torpedo-boat.
 "Marceau." "Éclair" " "
 "Amiral-Baudin."
 First class armoured-cruiser—"Chanzy."
 Third class cruisers—"Linois," "Cosmao."
 Torpedo-cruiser—"Wattignies."
 Torpedo-aviso—"D'Iberville."

Second Division—Rear-Admiral Maigret:—

Battle-ships—"Dévastation" (flag-ship). "Sarrazin" attendant torpedo-boat.
 "Courbet." "Argonaute" " "
 "Redoutable."
 First class armoured-cruiser—"Amiral-Charner."
 Third class cruiser—"Troude."
 Torpedo-aviso—"Léger."

Third Division—Rear-Admiral MacGuckin de Slane:—

Battle-ships—"Magenta" (flag-ship). "Kabyle" attendant torpedo-boat.
 "Neptune."
 Second class cruiser—"Suchet."
 Torpedo-cruiser—"Faucon."
 Torpedo-aviso—"Lévrier."

The "Brennus" is to relieve the "Formidable" as flag-ship of Commander-in-Chief, and the "Formidable" will then probably take the vacant place in the Third Division, bringing the strength of the squadron, as formerly, up to nine battle-ships.

Reserve Squadron—Vice-Admiral Cavalier de Cuverville commanding.

First Division—

Battle-ship—"Trident" (flag-ship).
 Coast-defence battle-ship—"Terrible."
 First class battery-cruiser—"Sfax."
 Third class cruiser—"Milan."
 Torpedo-aviso—"Bombe."
 Torpilleurs-de-haute-mer—"Orage," "Audacieux."

Second Division—Rear-Admiral Turquet de Beauregard:—

Battle-ship—"Amiral-Duperré" (flag-ship).
 First class battery-cruiser—"Cécille."
 Third class cruiser—"Lalande."
 Torpedo-cruiser—"Flèche."

The Squadron of the North, under the command of Vice-Admiral Régnauld de Prémèsnil, is composed as follows :—

First Division—

Battle-ship—"Suffren" (flag-ship), to be relieved by "Hoche."
 Coast-defence battle-ship—"Valmy," "Jemmapes."
 First class armoured-cruiser—"Dupuy de Lôme."
 Second class cruiser—"Friant."
 Third class cruiser—"Coëtlogon."
 Torpedo-avis— "Lance."

Second Division—Rear-Admiral Ménard :—

Battle-ship—"Hoche" (flag-ship), to be relieved by coast-defence battle-ship "Bouvines."
 First class armoured-cruiser—"Latouche-Tréville."
 Second class cruiser—"Chasseloup-Laubat."
 Torpedo-avis—"Salve."
 Torpilleurs-de-haute-mer—"Dauphin," "Ariel," "Tourbillon."
Le Yacht, Le Moniteur de la Flotte, and Petit Var.

GERMANY.—The following are the principal promotions and appointments which have been made: Korvetten-Kapitäns—da Fonseca-Wollheim and Wachenhufen to be Kapitäns zur See. Vice-Admiral Karcher has been relieved from the post of Director of the Naval Department at the Ministry of Marine. Rear-Admiral—Aschenborn to be Naval Commissioner of the Kaiser-Wilhelm Canal. Kapitän zur See—Büchsel to Director of the Naval Department at the Ministry of Marine.—*Marine-Verordnungsblatt.*

The Manœuvre Squadron has completed its sea-work for the year; the First Division, consisting of the "Kurfürst Friedrich Wilhelm," "Brandenburg," "Weissenburg," and "Wörth," taking up their station for the winter at Wilhelms-haven; and the Second Division, the "Sachsen," "Württemberg," and "Baden," proceeding to Kiel. The "Baden," like her sister-ship the "Baiern," has been detached from the squadron, and is to be placed out of commission, when the work of repairing and fitting her with new engines and boilers will be taken in hand at the Germania Yard, at Kiel; the other two ships of the class are to remain in commission, and the work of renovating and bringing them up to date is to be deferred until the two first-named are ready for sea again, which will not be for nearly two years. The work of completing the new fourth class battle-ship "Ægir" for sea is being pushed on; she will externally have a somewhat different appearance to the other vessels of her type, as she is to have two funnels instead of one and a military mast, the earlier vessels of the class having only a couple of signal poles. The new fourth class cruiser "Geier" has been completing her trials satisfactorily; with her engines developing 2,950-I.H.P., being 150-H.P. over the contract, the ship attained a mean speed of 17 knots; the pitch of her screws is to be altered and the trials will then be renewed. The three old second class battle-ships "Deutschland," "Friedrich der Grosse" and "König Wilhelm" are undergoing complete renovation, the two first at Wilhelmshaven and the last-named at Hamburg; they are, however, to be complete by the spring, when the "Deutschland" and "König Wilhelm" will be commissioned to take the place temporarily of the "Baden" and "Baiern" in the Second Division of the Manœuvre Squadron.

A Third Torpedo-boat Division for instructional purposes has been formed at Kiel; it consists of Division boat "D 7," and the first class torpedo-boats "S 58," "S 59," "S 60," "S 61," "S 62," and "S 63."

The three new second class protected-cruisers Ersatz "Freya," "K," and "L," which are about to be laid down, are of quite a new type in the German

Navy. Their dimensions will be as follows :—Length between perpendiculars, 344 feet 5 inches ; beam, 57 feet ; and with an extreme displacement of 6,100 tons the draught will be 21 feet 7 inches, with 950 tons of coal on board. There will be an armoured turtle-back deck, carried 4 feet 6 inches below the water-line at normal draught, and rising to a height amidships of 1 foot 6 inches above, with a maximum thickness of 3·9 inches on the slopes tapering fore and aft to 2·3 inches ; for a length of 215 feet of the ship's side there will further be a cork backing 3 inches thick, and extending 3 feet 6 inches above and 3 feet 6 inches below the water-line. The armament will consist of two 21-centimetre (8·2-inch) guns in turrets, one forward and one aft, which will be protected with 4-inch armour, the ammunition tubes being also made of steel armour 5 inches to 3·5 inches thick ; four 15-centimetre (5·9-inch) Q.F. guns, also in 4-inch armoured turrets, two on each side forward and two aft ; four similar guns in 4-inch armoured casemates on the broadside, the ammunition tubes being 3·8 inches thick ; ten 8·8-centimetre (3·4-inch) Q.F. guns with armoured shields ; fourteen smaller Q.F. guns, and one under water and two above water torpedo-tubes. The forward conning tower will be protected by 6-inch armour, and the after one will be made of 5-inch specially prepared Krupp steel, while the base of the funnels between decks will also be protected by 5-inch armour. The normal coal supply will be 500 tons, but 950 tons can be carried on an emergency. Each cruiser will have three screws driven by engines in separate compartments and supplied by water-tube boilers in six water-tight compartments. The aggregate H.P. will be 10,000 and the speed about 21 knots. The athwartship and fore and aft bulkheads in engine and boiler-room will be carried up to the armoured deck without any doors or break. The foremast will have two fighting-tops, and the aftermast will have one fighting-top. Both ships will be fitted to serve as flag-ships. "L," which is being built by contract at Bremen, is to be completed in two years.

For some months past extensive experiments with liquid fuel have been carried out on board the "Carola," "Siegfried," and some of the torpedo-boats with such satisfactory results that both the new coast-defence battle-ships "Odin" and "Ægir," as well as the new cruisers, are to have their furnaces fitted for using the Masut fuel (Masut being the Russian name). The fuel is composed of various coal-hydrates, which form the liquid heating material ; the first element being the distilled product of Russian petroleum mixed with other oils. The ignition-temperature of these oils being tolerably high (between 200° and 300° Celsius), they can be stowed and handled on board ship without danger. While the best coal can only heat between 4½ and 5 kilogrammes of water per pound of fuel, a similar weight of Masut will heat for steaming purposes between 8 and 9 kilogrammes. The specific weight being much less, a larger amount of the liquid fuel can be carried than of coal. In consequence of the greater heat developed by this fuel, it is necessary to materially strengthen those parts of the furnaces and boilers exposed to its action. The new fuel will be stowed in tanks and will be led through pipes to the furnaces, so that the stokers will be spared a good deal of heavy work, as two men can do the work which at present requires four stokers and a coal trimmer. There is, however, one disadvantage connected with the use of oil—a shell bursting in a coal-bunker might destroy it and scatter the coal as dangerous missiles about the ship ; but if ever a shot struck a tank full of oil, the escaping liquid might find its way into the stokeholds and cause a fearful explosion. Still the advantages attending its use are so great, that it is probable the Naval Authorities will adopt it.

The German Naval Estimates for 1896 will include the credit of 2,400,000 marks for the construction of torpedo-boats which figured on the Estimates for 1895 but was rejected by the Budget Committee of the Reichstag. This credit is the first instalment for the building of eight supplementary torpedo-boats, of a total cost of nearly 4,000,000 marks. It appears to be unlikely that any special demand for the

Navy will be made next year. The chief items of non-recurring expenditure will be merely the further instalments of the sums voted last year for the construction of the new cruisers Ersatz "Leipzig" and "Freya," the building of the cruisers marked "K" and "L" in the Naval programme, and for the construction of a torpedo Division boat.—*Neue Preussische Kreuz Zeitung*.

HAYTIAN REPUBLIC.—Last month a gun-boat named the "Crête-à-Pierrot" was launched from the yard of Messrs. Earle's Shipbuilding Company, Hull. The vessel is a single-screw steel-built cruiser of 1,000 tons displacement. The bow terminates with a cast-steel ram, and the stern is elliptic in form. The armament will consist of one 16-centimetre Q.F. gun on the forecastle, one 12-centimetre Q.F. gun on the poop, and four 10-centimetre Q.F. guns on the sponsons on the broadside; in addition there are two Maxim and four Nordenfeldt machine-guns fitted on the forecastle bridge. The ship will be propelled by a powerful set of vertical triple-compound surface-condensing engines.—*Moniteur de la Flotte*.

ITALY.—The following are the principal appointments which have been made: Rear-Admiral—G. Cafaro to command of 2nd Division of the Active Squadron. Captains—V. Romano to be Director-General of Artillery and Armaments at Tarento; A. R. Persico to be Director-General of the Dockyard of the 3rd Maritime Department (Venice).—*Gazetta Ufficiale*.

The 1st Division of the Active Squadron under the command of Vice-Admiral Accinni, and consisting of the first class battle-ships "Re Umberto" (flag) and "Andrea Doria," with the ram torpedo-cruisers "Etruria" and "Strömboli," has proceeded to the Levant. Rear-Admiral Cafaro has hoisted his flag on board the first class battle-ship "Morosini."

The new first class battle-ship "Sicilia" is carrying on her trials at Spezia. During a six hours' run under natural draught, with the engines making 96 revolutions a minute, and developing from 14,100 to 16,900-I.H.P., the high mean speed of 19·2 knots was maintained; as this was only a preliminary trial, it is hoped that at the official one a speed of over 20 knots will be reached. During a preliminary forced-draught run the engines developed 20,000-I.H.P., but the heat in the stokeholds was so excessive that, unless means can be taken to modify it, it is unlikely that, except on an emergency, recourse will be had to the forced draught.

The new torpedo-cruiser "Caprera," built by the firm of Orlando at Leghorn, has completed her official natural-draught trial, when the engines developed 2,200-I.H.P., being 200-H.P. over the contract, and a speed of 17·5 knots was maintained during the six hours the run lasted.

The new armoured-cruiser "Vettor Pisani" was launched at Castellamare on the 10th August; she is a sister-ship to the "Carlo Alberto," under construction at Spezia, and the dimensions are as follows:—Length between perpendiculars, 324 feet 6 inches; beam, 59 feet; mean draught, 22 feet 9 inches; with a displacement of 6,500 tons. Protection is afforded by a complete water-line belt of 6-inch nickel steel, which thickness of armour is carried up to the upper deck for two-thirds the length of the ship, forming a protected central battery; the armour-deck is from 2 inches to 1·8 inch thick, and there is, further, a cofferdam running round the ship filled with cellulose. The armament will consist of twelve 15·2-centimetre (6-inch) Q.F. guns, eight being carried in the casemate, and four on the upper deck on the superstructure, which will act as bow and stern chasers; six 12-centimetre (4·7-inch) Q.F. guns, one of which will be on the forecastle, one on the poop, and two on each side of the superstructure, and twenty-two 3-pounder and 1·5-pounder Q.F. guns in the tops and different parts of the ship. The engines are to develop 13,000-I.H.P. under forced draught, giving a speed of 20 knots.

The following ships are at present under construction in addition to the "Vettor Pisani" and "Carlo Alberto":—At Venice, the first class battle-ship "Ammiraglio Saint-Bon"; and at Castellamare, a sister-ship, the "Emanuele Filiberto"; the dimensions of these ships are:—Length, 344 feet 6 inches; beam, 68 feet 6 inches; mean draught, 24 feet 3 inches; with a displacement of 9,800 tons; the engines are to develop 13,500-I.H.P. under forced draught, giving a speed of 18 knots. The armour will consist of a complete water-line belt of nickel steel 10 inches thick; above this belt reaching to the upper deck and running about two-thirds the length of the ship, enclosing the base of the turrets is another belt 6 inches thick, above this again protected by the same thickness of armour is a central battery. The armoured deck is 3·3 inches thick tapering to 1·8 inch. The armament will consist of four 25·4-centimetre (10-inch) guns in pairs in 10-inch armoured turrets, one forward and one aft; of eight 15·2-centimetre (6-inch) Q.F. guns in the casemate, two of which will fire ahead and two astern, all the guns being separated by steel splinter-bulkheads; of eight 12-centimetre (4·7-inch) Q.F. guns on the superstructure, and of twenty small Q.F. guns in the tops and distributed about the ship. There will be four broadside torpedo-tubes and one in the stern. The conning tower and armoured tubes for the communications will be of 6-inch armour. The coal supply will be 1,000 tons and the furnaces will also be arranged to consume petroleum fuel. The engines will be made by the Ansaldo firm, the armour by the Terni Works, and the guns by the Armstrong establishment at Pozzuoli. Another armoured-cruiser the "Varese" is being constructed by the Orlando firm at Leghorn; she is very similar in type to the "Vettor Pisani." The following smaller cruisers are also under construction or on trial: the "Puglia," "Elba," "Calabria," "Caprera," and a gun-boat, the "Governolo." Another cruiser, of the same type, but larger than the "Vettor Pisani," is to be laid down at Castellamare; she is to be about 10,000 tons displacement, and is intended to replace the "Garibaldi," lately sold to the Argentine Government; and two new torpedo-cruisers, to be called the "Agordat" and "Coatit," are also to be laid down at the same yard. They will be improved vessels of the "Partenope" type and of the following dimensions:—Length, 287 feet; beam, 29 feet 9 inches; draught extreme, 10 feet, with a displacement of 1,300 tons.

The Minister of Marine has given orders to the Armstrong firm at Pozzuoli, for the twelve heavy guns required by the new battle-ships, and also for sixty smaller Q.F. guns, as the secondary batteries of many of the ships are to be changed. The Minister of Marine has also decided on the formation of a Red Sea and East Indian Division, which is to be under the command of a Rear-Admiral, who is to hoist his flag on board the cruiser "Etna."

A Royal Decree has been published, which constitutes the following places as fortified ports, to which the new regulations, with regard to the anchoring of foreign ships of war in time of peace, will apply:—Vado, Savona, Genoa, Spezia, Monte Argentario, Gaeta, Maddalena, with the neighbouring islands, Messina, Tarentum, Ancona, Venice, and the anchorages in the Lagoons.—*Italia Militare e Marina and Mittheilungen aus dem Gebiete des Seewesens.*

SPAN DOMINGO.—The Government has concluded a contract with Messrs. Napier, of Glasgow, for the construction of a small cruiser. The vessel is to have a speed of 14 knots, will carry nine medium-sized Q.F. guns, and is to be called the "Restauracion."—*Moniteur de la Flotte.*

SPAIN.—The new armoured-cruiser "Almirante Oquendo" lately completed her trials off Bilbao in the most satisfactory manner. Under natural draught, with the engines making 105 revolutions and developing 9,000-I.H.P., the mean speed maintained for six hours was 18·4 knots; under forced draught, with 117

revolutions and 13,000-I.H.P., the speed maintained was 20½ knots. This ship is the last of the three armoured-cruisers constructed at Bilbao in the Nervion Yard, the other two being the "Infanta Maria Teresa" and the "Viscaya," and they have all attained a high speed on their trials. They are vessels of 7,000 tons displacement, 341 feet in length, with a beam of 65 feet, and a draught of 21 feet. They have a 12-inch armour belt with a 2-inch armoured deck. The armament consists of two 28-centimetre (11-inch) Hontoria guns in 10-inch armoured turrets, one forward and one aft; of ten 14-centimetre (5½-inch) Q.F. guns and twenty-two small Q.F. and machine-guns, with eight torpedo-tubes.

Messrs. James and George Thomson, of Clydebank, Glasgow, have lately delivered seven gun-boats to the Spanish Government which are interesting as having been built under exceptional pressure for the purpose of taking part in the suppression of the rebellion in Cuba. The names of the vessels are as follows:—"Hernan Cortes," "Pizarro," "Vasco Nunez de Balboa," "Diego Velazquez," "Ponce de Leon," "Alvarado," and "Sandoval." The vessels are not all of the same type, but have displacements ranging from 300 tons to 100 tons, and the speeds range from 13 to 12 knots. The vessels are being delivered fully armed with Q.F. guns of the Maxim type, the largest gun having a calibre of 3 inches and firing a shot of 14 lbs. in weight. The contract for the vessels was signed on July 11th; the first vessel was launched on August 24th, and the last of the seven on September 20th. The first, the "Hernan Cortes," was ready for delivery on September 11th, and the whole seven gun-boats were completed on October 1st, or ten days within the contract time. Owing to the intervening of the Glasgow Fair holidays from July 11th to July 22nd, the actual construction of the "Hernan Cortes" was not commenced until the 22nd. The vessel was therefore constructed in forty-five working days, or little over seven weeks. The three torpedo-avisos under construction are to be named the "Donâ Maria de Molina," the "Marques de la Victoria," and the "Don Alvaro de Bazan."

The Minister of Marine has determined to substitute the 37-millimetre Maxim mitrailleuses, for the Hotchkiss gun of the same calibre. It has further been decided to lay down a new cruiser, and two torpedo-boat destroyers to bear the same names and take the place of the cruisers "Reina Regente," "Christobal Colon," and "Sanchez Barcaiztegui," which have been lost during the past year, while a new third class cruiser, the "Germania," built at Kiel for the Chinese Government has also been purchased. Six steamers of the Trans-Atlantic Company are being armed, and will be sent to Cuba to patrol the coast and prevent the landing of filibustering expeditions to assist the rebels. The old armoured-frigates "Numancia" and "Victoria" are to be sent to the La Seyne Yard at Toulon, to have new engines and boilers and be generally modernised. The "Numancia" is celebrated from being the first armoured ship sent to the Pacific and China, and the only armoured ship which has gone round the world.

Orders have been given to the Dockyard at Ferrol to hurry on the completion of the new protected first class cruiser "Alfonso XIII.," she is a vessel of 5,000 tons displacement, 318 feet 6 inches long between perpendiculars, 48 feet 9 inches beam, and a mean draught of 19 feet 9 inches; the engines are to develop 12,000-I.H.P.; giving under forced draught a speed of 20 knots. The armoured deck is to be of steel 4½ inches thick tapering to 3 inches, and the armament will consist of four 20-centimetre (7½-inch) Hontoria guns, six 12-centimetre (4¾-inch) Hontoria guns, and sixteen small Q.F. and machine-guns with five torpedo ejectors. The Arsenals of Carraca and Ferrol are to be connected by railway, so as to facilitate the transport of material. It is further proposed to send a naval officer of rank to inspect the dockyards in England and France, and to see how far the latest improvements in them can be applied to the Spanish yards.—*El Correo Militar*, *Mittheilungen aus dem Gebiete des Seewesens*, and *Times*.

MILITARY.

HOME.—*Targets for Coast Artillery.*—No satisfactory target to represent a torpedo-boat passing batteries at full speed has as yet been invented, the tugs usually employed for the purpose of towing targets are generally slow, and if faster boats were employed the length of tow line necessary to avoid accidents would become inconvenient. It is suggested that more satisfactory results might be obtained by employing a target containing its own motor. To this end, any tube having the requisite floatation to support the target itself, and steadied in the water by a pair of outriggers, could be driven by a rocket inserted in its stern; and as there are still an enormous number of war rockets of the Hale type somewhere in store, and old Blanchard pontoons of the infantry pattern available, the experiment could be made at almost infinitesimal cost. The composition having burnt out, the target would stop, and be recovered after practice with a minimum of trouble.

The Essick Page Printing Telegraph for use in Sea Coast Artillery Firing.—Attention is directed to a valuable paper in the *Journal of the U.S. Artillery* under the above heading. Essentially the instrument is the ordinary tape recorder common to all clubs and bucket shops. The advantages gained by its use would be the retention of a copy of the order actually transmitted, and greatly increased certainty in delivery compared with any speaking tubes or telephones at present in the Service.

The following letters, written by Lieutenant Robert Uniacke, 7th Light Dragoons,¹ give a Subaltern's view of the Battles of Orthes and Waterloo. They have been kindly communicated by Major R. S. S. Baden-Powell, 13th Hussars:—

ORTHES.

L'ILE EN JOURDAN, March 20th, 1814.

MY DEAR MOTHER,

I received your letter this day, dated 27th of last month, which was rather a busy day for us, as it was the day of the Battle of Orthes. I wrote to you the day after the battle, but could not tell you any of the particulars then; I was in such a hurry, I had only time just to say we had been engaged, and we have been marching ever since almost.

I must now tell you all the news of the battle. You must know it was the first *general* engagement I had been in; the 7th was the only cavalry regiment² engaged, and we did it in superior style. According to the returns sent to Lord Wellington, the 7th took 750 prisoners and 25 officers. Major Thornton took a standard; he was wounded in the belly, but is now quite well; has been taken prisoner since and escaped, and is now with the regiment commanding our squadron. Captain Heyliger was also wounded in the thigh, but is doing well; on that day six weeks before he was wounded, a ball passed through his arm, through his ribs, and lodged within a quarter of an inch of the spine, and he was just recovered the day of the action; we lost five men killed and twenty slightly

¹ Lieutenant Robert Uniacke was placed on half pay 24th July, 1817.

² The writer probably means that the 7th was the only cavalry regiment engaged in that part of the field, as on the right the 13th Light Dragoons, in conjunction with the 50th Regiment and Bean's Horse Artillery Troop, did much good work, and eventually, after a gallant charge, overthrew the cavalry opposed to them and pursued them for some distance, taking a large number of prisoners, and losing several men and horses and one officer. The 13th Light Dragoons actually crossed the front of the 7th Hussars at a late period in the action, when cutting off a part of the enemy's retreat. The 7th were then with the 10th and 15th Hussars.—R. S. S. B.-P.

wounded, none dangerously. Colonel Kerrison and the 7th have been thanked in General Orders for their gallant, steady, and soldier-like conduct in the field. Colonel Kerrison was also thanked by all the Infantry Generals, who also said they never were so well supported by cavalry as they had been throughout that day. Sir J. Cotter, who commands the cavalry, said he should write immediately to Lord Uxbridge to inform him of our conduct. Lord Wellington was on a hill, saw us charging the French infantry, and he asked what regiment it was. The Adjutant-General told him the 7th. He answered, "I did not know I had so fine a regiment under my command." In fact, we did it to the satisfaction of everyone, even the French themselves, for we gave some of our officer prisoners a good supper that night; and are at present the envy of the Brigade, who are wishing for another general battle to rival the 7th.

We have been to Bordeaux since with Marshal Beresford, who has been very civil to me. A band of robbers, who are in the neighbourhood of Bordeaux, killed thirty-six commissary mules of our regiment the other day. We are at present within two leagues of Toulouse, which is the largest town in this part of the country, 50,000 inhabitants in the town. The army are within half-a-mile of the town. There was a battle yesterday at Tarbes, where the French were beaten and driven four leagues.

I like this country better than any I ever was in, and do not wish to leave it on any account. We have been advancing since the 14th of last month, during which time there have been 30,000 deserters from the French Army, chiefly conscripts, who deserted to a man. We are received everywhere with open arms—it is like a dream; we march into a town, showed the best houses, get *capital dinners*, given plenty of claret and champagne; they give all the soldiers as much country wine as they can drink in some towns. I have drawn a draught on Greenwood for £34, and would be much obliged to you to remit him the money. I am as well now as ever I was in my life, and have had some sharp work since we advanced, twelve nights without my clothes off, and six without having the saddle off my horse's back; and yet I like this sort of work much better than London duty. My horses and mules are all well, in good condition, and so am I, so that I do not care a fig for anything now.

Give my love to sisters, etc., etc., and believe me,

Your truly affectionate Son,

R. UNIACKE.

WATERLOO.

CAMBRAÏ, June 25th, 1815.

MY DEAR MOTHER,

I wrote to you a letter the night after the action of the 18th to say that I was safe, but the man whom I sent it to Brussels by lost it; therefore I give you the whole account over again. On the 15th we got the order to march at three o'clock in the morning, and we marched forty miles that day, and bivouacked at night. The infantry had been engaged that day, and on the 17th the whole army retired about seven miles, the retreat covered by the 7th. The enemy harassed us very much, particularly in passing through a small town [Jemmapes]. The consequence was Lord Uxbridge faced the 7th about, and charged about ten squadrons of Lancers. We lost a good many men, and Hodge, Elphinstone and Myers were taken prisoners. We went into bivouac again that night; it rained all night as hard as it could pour, and next morning we went into position and the French attacked us about nine o'clock, and we had the hardest-fought action that ever was fought by any nation. It lasted till six o'clock without our knowing which army had the advantage; but after that hour the French began to retire, and we then drove them very furiously. The 7th charged thirteen times. I had

a very narrow escape. Poor Jack,¹ I am sorry to say, was killed; he received a cut just under the eye from the colonel of Bonaparte's Imperial Guard, whom I killed afterwards with a cut across his eyes and nose; he first cut my fur cap down the centre and gave me a slight cut on the forehead, which gave me a headache for the remainder of the evening, but that was all.

I then got on a troop horse, and a shell burst under him and broke both his forelegs. I then got on another, a trooper, which was shot through the neck; so that I lost three horses under me.

A musket ball also went through the sleeve of my jacket and hit my wrist-bone; it hurt me very much at the time, so that the reins dropped from my hands, but I am perfectly well now. I forgot to mention that Jack afterwards got a ball through his neck, and as I was dismounting a cannon ball took his under jaw off. Thus ended poor Jack's life. You may think how much we suffered when we only brought one colonel, one captain, and two other subalterns, besides myself, and about sixty men out of the field; all the rest being wounded or killed on the 17th and 18th. We had seventeen officers wounded, but, luckily, we had none killed, but some severely wounded; so that you may think how lucky I have been to escape. I have not slept in a bed or even in a house since the 16th. We have been following up the French ever since.

Yesterday we summoned the town and fortress of Cambray to surrender, which they refused. The consequence was that we stormed the town, and in about two hours it surrendered. It was the finest sight I ever saw.

I have not heard from you but once since I came into this country, whatever the reason of it is.

We have gained the most glorious battle ever was fought. You will see by the *Gazette* the number of prisoners and cannon we have taken.

Love to all.

Your truly affectionate Son,

R. UNIAKKE.

THE DELINEASCOPE.²

Communicated by Lieut.-Colonel P. Neville, 14th Bengal Lancers.

This is an instrument designed, amongst other uses, to assist the Military Surveyor by enabling him to construct maps from landscape sketches; it greatly simplifies and expedites triangulation, and saves much time in plotting.

It is very portable, and may easily be carried by a mounted officer, who must, however, dismount to use it.

The instrument consists of a small camera, having a lens with a fixed focus on a tripod stand. The lens is directed downwards, and carries beneath it a mirror inclined to the axis of the lens at an angle of 45° . This throws a true picture of the landscape on to a piece of tracing paper secured by a frame on a horizontal object-glass. In this picture the right and left are transposed. By means of a focussing cloth the picture is transferred to the paper with a pencil. The paper is then taken out and reversed over a graticule on a white card, which divides it into large and small squares, and then copied into a sketch-book ruled in similar squares. The graticule is made of a size to embrace exactly 30° of horizon, and two such sketches fill one page of the sketch-book. After transfer to the sketch-book the landscape is finished by eye, according to the ability of the draughtsman, but a very simple outline sketch is all that is necessary. There is a

¹ Previous letters describe how "Jack" was ^{is} the best charger in the King's Army," and how he had learnt to eat biscuits, meat, potatoes, etc.—R. S. S. B.-P.

² The preliminary specification of this instrument has been filed in the Patents Office, and a full patent applied for.

margin to every sketch in which to note all particulars regarding the ground, slopes of hills, height and thickness of walls, depth and current of streams, etc.; the back of each sketch is also available for further notes if desired. On the completion of a sketch it is only necessary to take with a prismatic compass the bearing of any perpendicular line—say, the centre line—and by means of a simple scale of half-degrees on a card the bearing of every point in the sketch may be ascertained. This will be found an immense saving of time, and, moreover, has this advantage, that the map can be made from the sketches after the return of the surveyor to camp or quarters—a very important point for a hasty reconnaissance. The instrument can be worked entirely by one person, and all that is required is an orderly to hold the surveyor's horse while he draws.

The sketches may be made very rapidly, and, after a trial or two, the primary inconvenience of drawing under a focussing cloth is hardly felt.

The camera folds flat, and is carried in a leather case by a shoulder strap. The lens and mirror chamber is carried in a case resembling that of a binocular, but smaller; and the tripod, which can be made of a folding pattern, can conveniently be carried in a carbine bucket.

FRANCE.—The following *résumé* of the new French Regulations for Field Artillery has been kindly contributed by Major E. S. May, R.A. :—

What will especially strike a reader of the two small volumes just issued by the French War Minister is the progressive nature of the methods of instruction which they inculcate, and the apt manner in which the capacities of those under tuition are legislated for. A carefully-graduated system of training is subdivided into the *école du canonnier-conducteur*, the *école de section*, the *école de la batterie*, and the *école du groupe*; while finally we have a chapter on the manœuvres of several *groupes* united together under one command. Each of the officers, be he sergeant or general, in command of the various units here indicated is, for the time being, the chief schoolmaster; he presupposes that the curriculum corresponding to the units inferior to his own has been mastered, he economises energy and time, and deals only, therefore, with matters which lie in his own especial province. The keynote throughout is, in fact, decentralisation; and nowhere is that overmuch or overlittle, which too frequently tends to mar such manuals, conspicuous.

The book differs from our drill book in so far that it deals only with mounted drill and stable duties. There is no gunnery in it, no foot parade work, and no hints for gun-pits, bridges, or such shifts and expedients as may be useful on active service; we find but very little connected with "ceremonial," and no special chapter on "tactics." On the other hand, the details of harness-fitting and the various parts of the harness and horse equipment are explained most lucidly and minutely, and a series of illustrations and diagrams is added to aid the learner, which is a model of clearness and minuteness. Such plates no longer figure in our drill book, and, doubtless, many who see the French ones will wish that similar assistance was provided for our recruits and young officers. It is in the portion termed *école du canonnier-conducteur* wherein these diagrams appear, and it may be said that an exhaustive thoroughness and attention to detail is the salient feature in this, the elementary part of the book. In the portion in which the *école du groupe* finds a place, on the other hand, the details are comparatively few, the movements to be practised are kept as simple as possible, and there is a large margin allowed for individual resource amongst the batteries.

That we may learn something from the methods of our neighbours is not impossible, even though we may not be prepared to admit the inferiority of our own.

The broad features of artillery tactics are much the same amongst all the nations of Europe. The formations and principles of drill and manœuvre are very

similar, and we find a very general resemblance in the methods of ammunition supply. It is not necessary, therefore, to enter into a close examination of the system laid down in the pages, but it may be interesting to note one or two points where it is suggested that "they order these matters better in France," or at any rate with a more liberal regard for the difficulties of commanding officers.

But first, with reference to a very simple matter indeed—a mere question of nomenclature. Is not the word "group," to describe the tactical unit of artillery, infinitely preferable to our cumbrous and absurd "brigade-division"? Officers of all arms know what a "brigade" means, and are all familiar with the term "division," but they may fairly wonder how or by what process of logic three batteries when drawn together under one command came to be described as a "brigade-division," and may be justly puzzled as to how it can either conveniently or reasonably be referred to by so monstrous a title. The word "group" would not bewilder our brethren of the other arms, has the merit of briefness and simplicity, and is, moreover, a recognised title amongst artillerymen at present. We have all heard of a group of guns in a fortress, and would not be startled violently were a similar designation to be applied to batteries on shore.

To return to the French drill book. The system of decentralisation recommended by it has already its counterpart in our regiment, and the best results have always attended it amongst us. In the artillery, a section officer has with us for years enjoyed a certain responsibility, and there can be little doubt that his powers of command have been fostered and developed by the fact. It may not, however, even now be quite superfluous to notice the French views on this subject. In the school of the section, we are told, are to be practised and taught all the movements which will be required from the men when the battery is being drilled as a whole. It forms an intermediate step between the teaching of the *canonnier-conducteur*, and that of the captain, who in the French Service commands a battery, and teaches the non-commissioned officers the art of leading men. It is an error, it is contended, to suppose that the course of instruction is delayed by it; on the contrary, it is hurried on. For the instructor, having only a comparatively small number of men to supervise, is able to devote more individual attention to each, and to help them in their difficulties. Moreover, since the section has its own proper life, and retains its own individuality, even when the whole battery is working together, it is especially desirable that those who compose it should learn from the first to look to its leader for guidance.

In the "school of the battery," while what we should term the "deliberate method" of the occupation of a position is under certain circumstances encouraged, the direct method is apparently regarded as the normal one. "The greatest latitude, however, is to be extended to the captain in the choice of his methods."

In the "school of the group," any modifications in the *Règlement* of 1888 are in the direction of allowing captains a large discretion in the choice of their methods of executing movements. The exercises of a group are limited to a very small number—regard to the configuration of the ground is always to be held in view; and the general object of the evolutions practised should be such as will teach a group to mass itself at a given point, to deploy from it in a line of columns, and finally, to place itself in a position for action. Changes of front and evolutions carried out otherwise than by the aid of a line of columns, although useful in developing the *coup d'œil* and readiness of officers, are nevertheless only to be taught exceptionally, "as they take up time which can be more profitably devoted to the training of the men in matters of detail."

In changing from one position to another when it is desired to take advantage of cover afforded by the ground, it is advisable to allow each battery to follow the path it finds most favourable, and not to attempt to lead the group in one column or to reform it in mass.

In the reconnaissance of a position, while a methodical plan is indicated, as much as possible is to be left to the initiative of group commanders (*chefs d'escadrons*) and captains, so that they may act according to the exigencies of the moment.

Finally, the Committee of Artillery report to the Minister of War that in order to facilitate the movements of batteries, and to enable them to avoid impassable places or ambushes, it is desirable to place at the disposal of group commanders a staff whose duty it shall be to look after the security of the batteries—men, that is to say, who might scout for them on the line of march, and whose services might usefully be employed later on in observing the effects of fire. That we have a similar need in our Service, has more than once been pointed out by officers of our artillery. The demand for such scouts, and for a staff for the commander of what we call a brigade division, is well recognised, and is even already legislated for, though in a manner more or less *impromptu*. It would seem, however, that a special organisation bearing official sanction and carried out at all the larger artillery stations, such as would leave the existing *personnel* of a battery untouched, would be desirable, not only because of considerations affecting the battery itself, but because greater efficiency in the duties of scouting, observation, and the carrying of messages would be arrived at. The paragraphs dealing with these *liaisons* in the French drill book run as follows, and are given in their entirety, as they will probably be of special interest :—

"The duty of securing the transmission of orders and information amongst the various organisms of a command is entrusted to a special *personnel* known as *agents de liaisons*."

Those *agents de liaisons* who do not belong to the commissioned ranks are often simply termed *agents*. (For example : *Agents des échelons de combat*.)

Every order transmitted through an *agent de liaison* should be sufficiently brief to be easily remembered and repeated textually by him.

If the order is to be acted upon immediately, it is to be terminated by the word *exécution*. In the opposite case, the person who receives the order gives his preparatory command if he has occasion for doing so after its reception, and waits for the signal or trumpet call *exécution*.

The *agents de liaisons* are carefully trained in delivering orders correctly and without hesitation. Before moving off it is ordered that they should repeat in a loud voice the order which they have to carry.

As regards the pace at which these *agents* are to move, it is laid down that they are to start for the first ten metres at a walk and are then to gallop. When they return to the presence of their chief, after having delivered their message, they are to move at the trot. Each unit on a war footing is to tell off an *agent* permanently, who is to march with it ; the regulations laying down exactly when he is to leave it and to whom he is to report himself for duty.

Each battery sends such an *agent de liaison* to the *chef de groupe*, and each *échelon de combat* (as the wagons in the second line of a battery are termed) to its commanding officer.

It will be noticed, therefore, that the *chef d'escadron* in command of a group of field artillery is always assisted in the field by three specially-trained non-commissioned officers, who act as his *agents de liaison*, and a trumpeter is also told off to him permanently. The regulations tell us that "whatever be the formation these non-commissioned officers place themselves in line four metres behind the *chef d'escadron* in the same order as their batteries, while the trumpeter places himself on their left." Each of these *agents* is only to be used exclusively for duty between his own battery and the *chef d'escadron*. No definite rules as to the exact rank of *agents de liaison* can, we are told, be laid down, but it is a first necessity that the transmission of messages should be certain. Therefore, whatever their rank, only such men are to be chosen as have natural aptitude and possess the necessary knowledge, and

they must be carefully educated beforehand in such a way that they are completely imbued with a sense of what their duties demand from them.

Certain rules rigidly govern the performance of these duties :—

An *agent* is never to be given more than one message, and is to devote his attention wholly and entirely to the two authorities whom he places in connection with each other. On the other hand, the *liaison* is inherent in the function, and every authority who performs temporarily several functions is to receive assistance from all the corresponding *agents*.

The functions of an *agent* are exclusive of all others ; nothing is to be allowed to interfere with the accomplishment of his mission. He is to study and remember the positions of the officers or units between which he acts ; he must carefully watch their movements, the country or path between them, and must know in what direction to look for them when he again wishes to find them.

Such are some of the regulations which govern the employment of an adjunct to artillery tactics which has been evolved by the necessities and exigencies of modern war. They may strike some of us as almost pedantic in their rigidity and excessive minuteness. But the attention which is bestowed on such means of communication in France seems to argue that a real necessity for it has been felt ; and that the need has created the remedy. That a carefully-organised system on the same lines should be legislated for in our Service is the desire of many of our officers, and they will perhaps be interested in details which may be regarded as dry and uninteresting by those not quite familiar with all the difficulties which have to be overcome, or who have not at any rate been brought into personal contact with them.—*Réglement sur les Manœuvres des Batteries Attelées, approuvé par le Ministre de la Guerre, le 25 Mai, 1895.* Paris : 11, Place St. André-des-arts, H. C. Lavauzelle, Editeur Militaire, 1896.

GERMANY.—*Field Artillery Tactics in the Manœuvres.*—The *Militär-Wochenblatt* (Nos. 97 and 98) contains many very shrewd comments on the manœuvre dodges of field artillery. Human nature is human nature whether on this side of the channel or the other, and the German artilleryman is no more exempt from its failings than his British comrade. The introduction of smokeless powder has led to an altogether unexpected development in the art of throwing dust in the eyes of the umpire ; and, no doubt, when the issue of cordite for manœuvring purposes becomes more general in this country, our umpires will find themselves confronted with the same difficulty.

The principle of indirect fire on the battle-field once being admitted, it becomes possible for a single battery—even a single gun—to create the impression on the other side, by means of an undue amount of noise, of the presence of a very large mass of artillery, inducing them to initiate changes to meet the threatening danger. Even when firing by direct vision, if the distance is at all great and the background favourable, there is great difficulty in locating a single flash, and advantage is often taken of this to make a single battery do the work of several, whilst the remainder of the mass take very deliberate time in coming into action.

Another common fault noticed is, on leaving a defile, for each battery to come into action on the nearest spot available, instead of following the old rule under which normally the head of the column went direct to the outer flank, and the spot nearest to the mouth of the obstacle was left to the last in the column. This proceeding certainly delayed the commencement of the fire, but it enabled the whole mass to open simultaneously and minimised the risk of being overwhelmed individually. The whole article is of great interest and deserves attention.

Small-bore Rifles.—The *Jahrbücher für Armee und Marine* refers to the question of the stopping power of the Lee-Metford rifle, as practically demonstrated

on active service in Chitral, but prefers the conclusions formed from the experiments frequently reported in its columns. Unfortunately a writer in the *Militair-Wochenblatt*, amply confirms English conclusions from personal experience with the Mauser in Africa, against both game and human beings.

RUSSIA.—The following notes from the *Russki Invalid* on the annual contingent for 1894 will be found of interest:—The quota required was 270,000; the contingent available—i.e., all men who reached their 21st birthday during the year 1893-94—was 1,024,167; of these 224,918 (24 per cent. of the whole) escaped on the usual grounds—only sons, etc.—and 226,816 were released from liability; conditionally, 37,587 (4·9 per cent.) were rejected as unfit altogether; 74,429 were found unfit for the standing army, but good enough for the second category; 87,900 temporarily unfit were put back for a year; 33,761 failed to appear at the ballot-urns, of whom 7,994 were Jews, i.e., 15·7 per cent. of all available Jews. Ultimately 268,447 men were actually enrolled. Of these 405 showed certificates of higher education, and 30·78 of the whole could read and write or read only. In these figures the Cossacks and Finns are not included.

New Cavalry Formations.—By an Order issued last September two new dragoon regiments are to be raised, which will bear the numbers 49 and 50. No. 49 will be quartered at Archangelgorod, No. 50 at Irkutsk; together they will form the 1st independent Cavalry Brigade.

New Artillery Formations.—By Order dated 17th September, 1895, the following new formations are authorised:—Three light batteries for the Guard, to be numbered 7, 8, and 9 of the 3rd Guard Brigade, Warsaw; 10 light batteries of the line, which will be distributed two and two to the 2nd Brigade (Bjela), the 4th (Lomsha), the 6th (Ostrow), the 10th (Lods), and the 18th (Lublin); five additional light batteries, one for each of the Rifle Brigades in European Russia; each battery with eight guns. It will be noticed that three of the five Rifle brigades are quartered in the Warsaw command, as well as all the field artillery brigades above enumerated. The net result is, therefore, an augmentation of 128 guns for immediate action on the German frontier.

New batteries are also to be formed to replace those recently ordered to the Trans-Baikal, viz., 4th and 5th Batteries of the 35th Brigade, and two batteries of the 2nd Field Howitzer Regiment (Kieff), which have proceeded to Eastern Siberia.—*Jahrbücher für die deutsche Armee und Marine.*

SWITZERLAND.—*High-Explosive Shells.*—The Prussian *Jahrbücher für Armee und Marine* communicates the following results of experiments in Switzerland with high-explosive shells. The gun used was a 12-centimetre (4·7-inch) siege piece, the shells of cast iron, and the charge *Weiss-pulver* (white powder), one of the new high-explosive compounds which we have been unable to identify. At a range of 20 metres against plank targets, the cone of dispersion, as ascertained from hits on the targets themselves, was 96° only. As computed from the hits on the ground, 91°; no splinters appear to have struck back. At 2,000 metres, the normal horizontal angle of dispersion was 145°; still no splinters were projected backwards. At 2,172 metres the mean dimensions of the craters were:—Length, 8·5 feet; breadth, 8 feet 4 inches; depth, 3 feet 10 inches. The short fortress gun (practically howitzer) gave much poorer results. The smoke thrown up by the explosion was in all cases satisfactory, and out of the 356 shells expended none burst in the bore.

FOREIGN PERIODICALS.

NAVAL.

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens*. No. 12. Pola and Vienna: December, 1895.—“Prize Essay,” by Major Elmslie, reproduced from JOURNAL of Institution. “On the influence of Water-circulation in Water-tube Boilers.” “Italian Types of Cruisers” (with photographs). “The New Constructions for the French Fleet.” “The launch of the United States armoured-cruiser ‘Brooklyn.’” “Foreign Naval Notes.” “The Naval Budget, for 1896, of the Netherlands.” “Book Notices.”

DENMARK.—*Tidskrift for Sjøvesen*. No. 5. Copenhagen: 1895.—“The Naval Commission, 1673.” “History of the Naval Cadet Academy from 1827 to its suppression.”

FRANCE.—*Revue Maritime et Coloniale*. Paris: November, 1895.—“The Italian Colonies.” “The Navy and the Proclamation of the First Republic.” “The Circulation of Winds and Rain.” “Influence of Sea Power on History”; translated from Captain Mahan’s work. “The Naval Budget of Japan.” “Naval Foreign Notes.” “Book Notices.” “The Sea Fisheries.”

Le Yacht. Paris: 2nd November, 1895.—“The Reforms of the Navy.” “Yachting Notes.” “Naval Chronicle, Home and Foreign.” 9th November.—“The Budget of Naval Constructions.” “Yachting Notes.” “The ‘Soimas’ Russian boats in use on Lake Ladoga.” “Naval Chronicle.” 16th November.—“The Reforms of the Navy and the New Minister of Marine.” “Yachting Notes.” “Home and Foreign Mercantile Navies.” “The funnels of Ships-of-war.” “Naval Chronicle, Home and Foreign.” “The Navigation of the Mekong.” 23rd November.—“The distribution of Torpedo-boats in time of peace.” “Yachting Notes.” “The grounding of the battle-ships at La Badine.” “Naval Notes, Home and Foreign.” “The New Chilean cruiser ‘Blanco Encalada’” (with photograph). 30th November.—“The grounding of the battle ships off La Badine.” “Yachting Notes.” “Home and Foreign Mercantile Marine.” “The Brazilian battle-ship ‘Riachuelo’” (with photograph). “Naval Chronicle, Home and Foreign.”

Le Moniteur de la Flotte. Paris: 2nd November, 1895.—“A Tactic of Battle.” “Colonial Notes.” “Naval Chronicle, Home and Foreign.” 9th November.—“The New Minister of Marine” (with portrait). “A General History of the Navy.” “The New Constructions.” “The Removal of Wounded on board Ships-of-war.” “Colonial Notes.” “Naval Chronicle, Home and Foreign.” 16th November.—“The New Chief of the General Staff.” “The Modifications in the Naval Budget.” “Colonial Notes.” “Naval Chronicle, Home and Foreign.” 23rd November.—“New Press Campaign in England.” “The Grounding of the Battle-ships.” “Colonial Notes.” “Naval Notes, Home and Foreign.” “The Roster for Embarkation of Capitaines de Frégatè.” “The Grounding of Three Battle-ships.” “Madagascar Notes.” “Naval Chronicle, Home and Foreign.”

La Marine Française. Paris: 10th November, 1895.—“A Programme of Work” (Commandant Z). “The Genesis of the ‘Dupuy de Lôme.’” “Retrospective Notes on Battle-ships.” “The Report of M. Camille Pelletan.” 25th November.—“The Quadruple Grounding of Battle-ships.” “The Promotion of Capitaines de Vaisseau and the Employment afloat of Capitaines de Frégate.” “Naval Construction.” “Retrospective Notes on Battle-ships” (concluded). “Naval Reforms” (H. Montéchant). “Home Naval Chronicle.” “The Mercantile Navy, the Excess Premium on Speed.” “Official Documents Relating to the Present State of the Navy.”

GERMANY.—*Marine Rundschau*. Berlin: December, 1895.—“Our Navy.” “The costs of Ships-of-war in the English Navy.” “The Political and Economical Importance of the German Colonies.” “The Pumping and other arrangements for Extinguishing Fire on board Ships-of-war.” “Foreign Naval Notes.” “Book Notices.”

ITALY.—*Rivista Marittima*. Rome: November, 1895.—“Ventilation in Ships.” “The History of Yachting” (with photographs). “The Naval and Military Situation in the Mediterranean (*concluded*).” “South America and Italian Commerce.” “The Mercantile Marine in Italy.” Letters to the Director.—“On the employment of Automobile Torpedoes,” “On Torpedo-boat Attack,” “Considerations on the Calibre and number of Guns of a large Ship,” and “Electricity on Ships-of-war.” “Foreign Naval Notes.” “Notes on the Mercantile Marine.” “Book Notices.”

RUSSIA.—*Morskoi Sbornik*. St. Petersburg: October, 1895.—“The Regulations of the Neva Yacht Club.” “The Administration of the Naval Departments in England.” “Observations of a Diving Officer.” “Notes from the Diary of Rimski-Korssakow.” November, 1895.—“Remarks on the Construction of the Emperor Alexander III. Harbour.” “On Contraband of War.” “The completion of the *personnel* of the English Fleet.” “The Re-organisation of the French Navy.” “Notes from the Diary of Rimski-Korssakow.”

SPAIN.—*Revista General de Marina*. Madrid: November, 1895.—“On the Military value of Torpedo-boats.” “Modern Naval Tactics.” “Elementary Electro-dynamics.” “Diseases and Epidemics at Sea.” “Meteorology and the loss of the cruiser ‘Reina Regente.’” “Weather Forecasts.” “Naval Foreign Notes.”

SWEDEN.—*Tidskrift i Sjöväsendet*, No. 5. Carlsrona, 1895.—“On the Pensioning of Seamen of the Merchant Navy.” “Details of the Requalifying Course for Reserve Officers in 1895.”

UNITED STATES.—*Proceedings of the United States Naval Institute*, Vol. XXI., No. 3. Annapolis: 1895.—“Honourably Mentioned, 1895:—“Suggestions for Increasing the Efficiency of our New Ships” (Naval-Constructor W. Baxter). “Honourably Mentioned, 1895:—“The Battle off the Yalu” (Ensign Marble, U.S.N.). “The ‘Petrel’s’ Installation in Manchuria during the War between China and Japan.” “Pressure of Smokeless Powder Gases in the Bore of Guns,” by Colonel Zabondski, Professor at the Michaelovsk Artillery School”; translated. “The Disappearing Gun Afloat.” “Naval Notes, Home and Foreign.”

MILITARY.

INDIA.—*Journal of the United Service Institution of India*. No. 121.—“A German view of the Cossack ‘Lava’”; translated from the *Russki Invalid* by Lieutenant R. G. Burton, 1st Infantry, Hyderabad Contingent. “Convoy Escort Duties in Mountain Warfare,” by Major A. W. Radcliffe, 14th Sikhs. “Regulations for the Training of the Russian Cavalry in Swimming,” by Captain P. Holland, 5th Punjab Infantry. “Transport in the Field,” by Captain A. Wallace, 27th Punjab Infantry. “General Lee,” by Lieutenant Bower, 2nd Bengal Infantry. “Signalling,” by Lieutenant C. Crookshank, R.E. “The Sword of the Infantry Officer,” by Major V. C. Tonnochy, 4th Sikhs P.F.F. “Experiences of Telegraph Officials in Kashmir during the winter 1894-5,” communicated by the D.G. of Telegraphs. “A trip in Somali-Land,” by Captain Wellby, 18th Hussars. An exceedingly interesting number.

CANADA.—*Canadian Military Institute selected papers, 1804-95*.—"Record of the services of Canadian Regiments in the War of 1812," by Captain E. Cruikshank. "Canada's Maritime Position and Responsibilities," by H. J. Wickham, late R.N. "The State and Condition of the Rural Battalions of Infantry Militia," by Lieut.-Colonel R. H. Davis. "Some Lessons to be learned from the American Civil War," by R. E. Kingsford. "Notes, Reprints," etc. The whole of this number is warmly recommended to readers.

AUSTRIA.—*Mittheilungen über Gegenstände des Artillerie- und Geniewesens*. November.—"The War Equipment of Fortresses," from a Russian point of view (translation). "European Field Bridging Systems" (*continued*). "Experiments with a new Photochronograph for measuring the velocity of Projectiles." "Traction on single rails for Field purposes," by Captain Seissel; worth reading, though the idea is not new.

FRANCE.—*Revue du Cercle Militaire*. 2nd November.—"Garrison Manœuvres for Officers of the Reserve and the Territorial Army." "The New Musketry Regulations." "The Folding Bicycle during the Manœuvres"; read. 9th November.—"A Russian Officer's opinion on the French Army"; interesting to note his standpoint. "The Defence of the Coast Line"; a long summary of Major Elmslie's Prize Essay in the R.U.S.I. JOURNAL. "The Folding Bicycle at the Manœuvres" (with map); a careful summary of these papers would be gladly received by the editor of the JOURNAL. 16th November.—"The Russian Opolchenie"; the opolchenie corresponds approximately to the Armée Territoriale of the French or the Landsturm of the Germans. "The New Cavalry Regulations" (16th September, 1895). 23rd November.—"Military Hygiene." 30th November. "The recruiting and distribution of recruits in Italy."

Revue Militaire de l'Étranger. November.—"The Imperial Manœuvres in Germany, 1895"; a carefully compiled account, well worth reading. "The Development of the Railway Communications in Alsace-Lorraine" (*continued*); invaluable for students of this theatre. "The Military Organisation of Greece"; in view of possible eventualities may become useful. "Notes," etc.

Revue d'Artillerie. "Preparatory Instruction for the Russian Field Artillery." "The Corps of Artillery of France"; historical retrospect. "German Siege and Coast Material," by A. Michaut (with illustrations).

Le Spectateur Militaire. 15th November.—"M. Cavaignac's Project for a Colonial Army"; worth reading and thinking over. "Our Recruits"; an order of the day by General de Saint-Mars, commanding the 12th Corps; this order, appealing to the officers, non-commissioned officers, and soldiers of the corps, to assist and protect by every means in their power the recruits about to be handed over to their care, has been received with sneers and adverse comment by a certain section of the French press. The JOURNAL takes up the cudgels for the General, finds nothing to sneer at in the order, and we venture to agree with its editor most cordially. "Calling out the Class of 1894." "The New Regulations for Field Service," by Noël Desmaysons. "Decorations, Orders, and Medals." Historical study, by C. Boissonnet. "The Manœuvres at Wissous"; Wissous is in the circle of the Parisian defences. These manœuvres have been instituted by General Saussier for the better training of the officers of the territorial army and of the reserve. 1st December.—"The Grand Manœuvres in the Faucilles, 1895," by M. Guymarais. "M. Cavaignac's project for a Colonial Army," by le Brun. "The Administrative Services and M. Cavaignac." "The Report on the War Estimates."

Journal des Sciences Militaires. November. "Against the Two Years' Service Proposals," by General Lewal; full of good sense and well worth study. "The existing situation in the Extreme Orient." "Long-range Infantry Fire," by Major Josset; nothing new. "The Cavalry of the Allied Armies during 1814."

"Preparation of the Company for Field Service," by Captain Fonclaire. "A Visit to the Swedish and Russian Armies," by Captain Malleray.

Revue de Cavalerie. October (received too late for last month's issue).—"Cavalry Masses"; unsigned, but very interesting. "The Instruction and Leading of Cavalry"; translation of General Pelet-Narbonne's work (*continued*). "The German Cavalry and the Army of Chalons." "The Italian Cavalry." "Observations on the French Army from 1792 to 1868." "The Mechanism of the Movements of the Horse," with illustrations by instantaneous photography, and comparison with ancient sculpture. "An Italian opinion on the British Cavalry at the last Manœuvres"; the oft-quoted article by Baron Salvi in the *Militair-Wochenblatt*.

L'Avenir Militaire. 1st November.—"The new Minister of War." "The Manœuvres for Officers of the Reserve." "The Circular of the 27th June." "The Manœuvres in the Faucilles." "Two Years' Service"; a powerful and well-written article. "Le Maréchal de Segur," Minister of War under Louis XVI.; review of his life, recently published in Paris by Plon, Nourrit & Co. 5th November.—"The New Minister." "Military Centralisation in Switzerland." "The Reserve Cadres." "Disciplinary Companies." "Le Général Boulanger et son amie"; review, a chapter of contemporary history. 8th November.—"The Soldier's Bread Ration"; complains of the want of progress in the military bakeries. "Military Cycling." "The Foundations of a Colonial Army." "The Arrival of the Recruits for the 12th Corps"; General St. Mars' *ordre du jour*. 12th November.—"The Reserve of the Colonial Army"; further discussion of M. Cavaignac's proposals. "Voluntary Enlistments." "The Laws of Cryptography." 15th November.—"Colonial Infantry and Artillery." "The Battalion Adjutant." "The Coming European War"; prognostications by *sir* Richard Hobson, U.S.N." (*sic* in original); in spite of the above-mentioned slip, a very sensible article. "The Psychology of Crowds," by le Bon; review, worth reading. 19th November.—"L'Armée et les Condamnés"; discusses recent proposals to recruit the Colonial Army from thieves and criminals, and, needless to add, condemns the project entirely. "More fraudulent Contractors"; this time at Rennes. "Recompenses for Madagascar." "Auxiliary Services in the Colonial Army." "L'Armée Française in 1895"; notice of a confidential work on the lines of Stoffels. "L'Armée Française in 1867"; about to be issued to deputies, senators, etc., by Colonel Allaire. "Subtleties of Cryptography." 22nd November.—"Particularism and Justice." "The Battalion Adjutant." "The Relief of the Colonial Force." 26th November.—"Command and Administration." "The Age Clause." 29th November.—"The Expedition to Madagascar." "Militarism and Anarchy"; an indictment by M. Jules Delafosse of the existing French organisation. "Gendarmes and Douaniers."

GERMANY.—*Deutsche Heeres-Zeitung.* 6th November.—"A Drill Book of 1653"; interesting; it was prepared for a Tyrol regiment. Should be compared with the "Soldier's Accidence," London, 1643. 9th November.—"The entrance of the 2nd Prussian Army into Bohemia, 1866." 13th November.—"The German, Russian, and French Infantries in Attack and Defence"; comparison of the several drills and instructions. 16th November.—"Reform of the British War Office." 20th November.—"Changes in the French War Ministry." "The War Hound"; very interesting details; the formation of a Government breeding establishment for dogs is not improbable. 23rd November.—"Artillery v. Infantry in Action." 30th November.—"The Battalion, Regiment, and Brigade on the drill ground, and their training for the battle-field." "A new field gun for the Swiss Artillery."

Militair-Wochenblatt. 2nd November.—"General von Goeben"; review of his life recently published by Mittler, Berlin. "Notes on Artillery Manœuvre

Tactics." 6th November.—"Artillery Manœuvre Tactics" (*concluded*), see Military Notes above. "Marching in Separate Columns and on Broad Fronts"; read. 9th November.—"The New Cavalry Regulations"; 16th September, 1895. "Marching in Separate Columns and on Broad Fronts": gives a very interesting description of Napoleon's march from Silesia to Dresden, 1813, from Foucart's "Campagne de Prusse," Prenzlau, Lübeck, pp. 674-676. "Launch of the 'Victorious,'" from the *Times*. 13th November.—"Smokeless Powder on the Battle field." "Inspection of the Caucasian Cavalry." 16th November.—"Common errors as to the action of the curb bit," by Rittmeister Thompson, Bavarian Army; interesting investigation for specialists. "The rejection of the New Army Bill in Switzerland." "The Final Examinations at the Staff College," from the Official Report; calls attention to the very high order of detailed knowledge the solution of these papers demands. 20th November.—"March of a Russian Battery through Siberia." 23rd November.—"Review of General Grolman's Life." "Reserves": their employment in modern war. 27th November.—"How to protect our young soldiers from moral contamination." "Report of the Veterinary Department for 1894." "Bronzed Aluminium"; a new process. *Supplement to the Militair-Wochenblatt*.—"The Battle of Prag"; lecture delivered before the Military Society in Berlin by Lieut.-Colonel von Bernhardt.

Jahrbücher für die deutsche Armee und Marine. November.—"Friedrich von Hellwig"; a study of partisan warfare in 1814, by Lieut.-Colonel Frabicius. "The Operations of Large Armies at the commencement and during the last half of the present century," by Colonel von Masckhe. "The Austrian Field Artillery during the last forty-five years," by Captain Dittrich, K.K. "The Coast Defences and Harbours of Russia in Europe and in the Caucasus," with special reference to the problem of invasion; deserves careful study. "Economical Problems on the outbreak of a European War"; an even more difficult and absorbing problem than bi-metallism. "Gambetta in the Clouds"; account of the pursuit of Gambetta's balloon by Prussian Hussars. "A Soldier's Life in the Thirty Years' War"; an exceedingly interesting historical study, with details of the early practice of courts-martial. "Letters from Russia"; notes the formation of two new dragoon regiments in the district round Archangel, also the recent artillery augmentations in the Warsaw province.

December.—"The strength of the Prussian Army at the outbreak of the Seven Years' War," by Max Immich. "The Operations of 'Mass' Armies in the Wars at the beginning and during the second half of the century" (*continued*). "The coasts and harbours of the Russian Empire in Europe and the Caucasus" (*concluded*). "The British Naval Manœuvres." "Bernadotte's conduct in the Campaign of 1814." "Military Life in the Thirty Years' War." "News from Russia." "Summary of progress in the manufacture of Arms and Ammunition." Reviews, etc.

UNITED STATES.—*Journal of the Military Service Institution*. November.—"Can West Point be made more useful?" by Lieutenant Birkhimer. "Extended Order," by Captain Fornance. "Military Education for the Masses," by Major-General Kautz. "Artillery Organisation," by Lieutenant Best. "Military Reservations," by Lieutenant Parke. "The Bicycle for Military Use," by Lieutenant Whitney; a very useful summary of work done in this direction up to date; perhaps the author claims a little too much for his hobby. "Ammunition Packing Boxes," by Lieutenant Penn. "The Equine Toilet," by Veterinarian Treacy. Reprints and translations:—"The Evolution of War," by Lieut.-Colonel Elsdale, R.E. "Twenty Years of Tactical Evolution in Germany," by Captain Maude, R.E., from the Proceedings of the Corps of Royal Engineers. Comment and criticism. "Discipline: its Importance to an Armed Force"; review and discussion of the recent Prize Essay.

The United Service. November.—“If attacked, can the United States carry on an Offensive War?” by W. R. Hamilton, Lieutenant U.S.A.; a thoughtful article, giving full information of the transport resources of the States (see Notes). “The Occupation of Fort Sumter,” by F. Jordan. “Railway Batteries and Armoured Trains.” “A Contribution to History, 1861-65,” by Ben. C. Truman. “The English Officer as he was and as he is”; reprint from *Blackwood*.

Journal of the United States Artillery. October (published quarterly only).—“Experimental use of the Essick Page Printing Telegraph for Transmitting Information in Sea Coast Artillery Practice,” by Lieutenant C. H. Carbaugh; a practical suggestion worth consideration. “Notes on Confederate Artillery Service,” by Professor Humphreys, University of Virginia; a highly interesting article; see also a paper by the same author, Vol. III., No. 4. “Artillery Projectiles and their Penetration”; a mathematical paper of great merit. “Coast Artillery Fire Instruction,” by G. A. Zinn, First Lieutenant. “Note on a photographic method of determining the complete motion of a gun during recoil”; very interesting. “The training together in peace-time of the Garrison Artillery of the Empire”; Silver Medal Prize Essay, by Captain E. G. Nicholls, R.A. The Notes in this number are, as usual, full of interest.

NOTICES OF BOOKS.

A History of the 17th Lancers (Duke of Cambridge's Own). By Hon. J. W. FORTESCUE. London: Macmillan and Co., 1895. Price, 21s.

We can congratulate Mr. Fortescue with the utmost sincerity on his very excellent story of this distinguished regiment. It is, in marked contrast to the usual style of regimental record, absolutely readable from cover to cover, and the author shows both judgment and a real knowledge of his subject in the historical summary of events which holds the regimental history together.

We demure a little to the opening pages on Cromwell's Ironsides, for on grounds of common sense, knowledge of human nature, and the characteristics of the Arm, we incline to the belief that Cromwell's troopers did not ride kickers, with a placard on their backs (for the same reason that people don't ride them nowadays in the hunting field), and also we feel that the evidence does not support the conclusion that they charged only at the trot, relying on their pistols and swords to loosen the enemies' order, rather than on the knee-to-knee shock. The Royalist cavalry, certainly, derived their military education from the Austrians, who were not addicted to the closed charge at full gallop, but the Parliamentary horsemen were trained by men who had soldiered with Gustavus Adolphus in the thirty years' war, and Gustavus was as alive to the power of the knee-to-knee shock at speed as even Seydlitz himself. No doubt, in spite of all orders and instructions to the contrary, the opposing forces would pull up now and again and look at one another; such things have always happened in war-time; even our Peninsular heroes sometimes failed to ride home, but the fact that such incidents were or are mentioned at all, rather tends to prove the rule, for if the event had not been exceptional it would not have been mentioned. The point, however, is not essential, as unfortunately the history of the regiment does not turn on the closed charges of great masses at all. Theirs has been the far more thankless task which falls to the lot of the light cavalryman pure and simple, where small bodies are detached, and without the stimulus of their comrades' eyes upon them expected to face almost certain death from treacherous foes in ambush, in order that the rest of the army may sleep in safety, and those who have tried both, know how much greater the strain of the latter is. The experiences of the detachment that represented them in America were quite exceptional, and, again, we can only congratulate the author on the way in which he has fulfilled his most difficult task, for the *précis* of the events of the campaign outside the radius of action of the corps itself is simply masterly. Tarleton, the hero of a short sketch of some thirty pages, deserves a monograph all to himself, and the doings of the men who charged at Cowpens might well be expanded to a volume; and, again, we would recall to the reader the difference of charging in a troop of twenty against overwhelming odds, and of being only one unit out of two thousand in a front of over a mile.

The expedition to Jamaica, apart from its special interest at the present moment owing to the resemblance of the conditions to those in Cuba, possesses abiding value as evidence of the fact that there is nothing in the nature of things themselves to prevent a brave horseman fighting as well as the best on foot, when the circumstances of the moment compel him to relinquish his horse—a point which theoretical advocates of the arm are too apt to forget. The story of the Balaclava charge is altogether admirable; the author has seized on and brought into prominence just those very points which are vital and which most others have unaccountably missed. "C'est magnifique, mais ce n'est pas la guerre," has passed into a proverb, but we venture to suggest that insular perfidity never played a more

scurvy trick on a distinguished foreign officer than by repeating or inventing the saying. If the long, steady gallop down the valley of death, men always closing in to the centre, horses thoroughly in hand up to the last moment before collision, if that did not approach perfection from the cavalry soldier's point of view, we should very much like to know what would.

In the pursuit of Tantia Topes, the essential point is the marvellous endurance shown by both men and horses. In the full blaze of an Indian hot weather they performed day by day feats never exceeded by any cavalry, and that, too, with an almost entire absence of sore backs—a further proof, if any were needed, that sore backs are a consequence of a vicious system. Curiously, it happened that, through the exigencies of the case, the regiment was compelled to act on the squadron, not on the regimental system. Finally, the author notes a point worthy of especial attention, viz., that whenever the circumstances of the moment induced the dissemination of the regiment in detachments, the N.C.O.'s, and even the troopers, at all times showed a special aptitude in assuming responsibility; and, reading between the lines of the history itself, the reason is obvious.

Cavalry in the Waterloo Campaign. By General Sir EVELYN WOOD, V.C.
London: Sampson Low, 1895. Price, 3s. 6d.

The thanks of the whole Service are due to the writer of this excellent little work. When an officer holding the high position occupied by Sir Evelyn Wood makes time to recall to his comrades the value of the services an efficient cavalry can render, it may be hoped that the days of cheese-paring economy are ended, and before long the Arm which he has taken under his protection may find itself at last in a position to develop that efficiency which is the sole justification of its existence at all. Considering the fact noted by Sir Evelyn in his preface that civilians have shown a keen interest in his work, it seems a pity that a little more space was not devoted to analysing the difference which existed between the opposing cavalries. To the average reader, and indeed, to their shame be it said, to many a British officer, a cavalryman is a man on a horse with a more or less showy uniform; of the difference which really exists between the individual units of a perfect cavalry and the class of men and horses alone available to Napoleon after his twenty years of warfare, they have no idea at all. Of the men Sir Evelyn tells us something, but of the hopeless remounts with which they had to make shift he hardly affords us an adequate picture. But it was this remount question which lay at the root of the whole matter, for no devotion on the part of the riders, neither heroism nor skill on the part of the leaders, could by any means have atoned for this inherent deficiency in their material. The British were in far better case, though starved, as usual, by the Treasury, the country was full of horses of an excellent stamp, and ample time had been given them to shake down into a style which rendered leading, within limits, reasonably possible. Still it is clear from the evidence with which Sir Evelyn supplies us, that they fell far short of the standard that would to-day be exacted.

Now, though the book is remarkably free from any patriotic bias, is written indeed throughout with that temperate impartiality which should characterise all historical investigation, it would be showing an almost childlike faith in the perfectibility of human nature to assume that all or even a large fraction of its readers will bring the same impartiality to bear upon its perusal; and the above remarks are ventured in the hope of recalling to some of these too ardent patriots that our balance of success in the three days' campaign was in no degree due to any inherent superiority in the British cavalryman, but simply to the fact that on the particular occasions in question the British cavalryman had the advantage of a better horse and longer time in which to break him in, which latter duty, by the way, he had performed sufficiently badly, as witness the failure to rally promptly of the Union Brigade after their success against D'Erlons Corps.

Im Grossen Hauptquartier, 1870-71: Personal Reminiscences. By J. von VERDY DU VERNOS. Berlin: Mittler, 1895. Price, 5s. 6d.

No more interesting work on the Campaign 1870-71 has as yet made its appearance. Apart from the interest which necessarily attaches to his recollections of persons and events, his book shows also the detailed working of the staff machinery on which the ultimate results depended; we are taken behind the scenes, as it were, and shown the bureaux and sections grinding out the orders shortly to become concrete fact.

Von Verdy is essentially an optimist—all was for the best in the best of staffs possible; if anything was wrong, then he at least is not going to disclose where the fault lay, though, with his habit of accurate truthfulness, the facts which reveal the occasional friction, known to have occurred, are duly recorded, and a check thus afforded to the more outspoken and less discreet authors, such as Hoenig and others. "Why were the German victories of 1870-71 so crushing and complete?" That is the question for the solution of which one naturally turns to a work of this nature, and one does not turn in vain. The simple answer therein given is, that the whole headquarter staff had all been forged to the same standard, were old personal friends and mutually trusted one another; from start to finish of the whole campaign there was never amongst them a single dispute of a personal nature, or the exhibition of personal jealousy, and the more one studies the inner history of the whole war the more is the conviction brought home that in this mutual trust, this absence of egotism, lay the whole secret of success. Contrast the staff and corps commanders, man for man, on either side: in point of war experience the French could boast of years against the Germans' weeks of actual service, and in point of knowledge of human nature the former still retained the advantage, for it is obvious that to come to the front and hold one's own in the atmosphere of restless intrigue peculiar to the Imperial Court, and its surroundings, required qualifications of a very different order from those of painstaking study and severe self-denial, which alone governed advancement at Berlin.

Yet all these apparent advantages proved of no avail without the binding tie of duty for duty's sake and deep-seated loyalty to their country which knit their opponents together.

But Verdy's optimism singularly discounts the full value of the services he and his comrades rendered to the Fatherland; and to appreciate them aright it is necessary to supplement the study of his own writings by the careful perusal of Hoenig's works, who reveals to us more accurately than any living author the real, ultimate strength of the materials with which they had to work, and enables some judgment to be formed of the resolution and steadfastness of purpose needed to overcome the internal friction of the machinery in the battles round Metz and the December days round Paris and on the Loire.

Cavaliers de Napoléon. By F. MASSON, illustrations by EDOUARD DETAILLE. Paris: Boussod, Valados et Cie., 1895. Price, £2 10s.

This book is simply a triumph of the printer and engraver's work. Detaille's art work is so well known and so highly appreciated in this country that further praise of his share is unnecessary, the marvel lies in the exquisite reproductions herewith given us. Some twenty plates and a few matchless little vignettes supply pictures of all the types of uniforms which clothed the Napoleonic Cavalry, and enable one to recreate in one's imagination the magnificent pomp and circumstance which characterised the warfare of those days—the grand parade of the French Army on the morning of Waterloo, for example.

Why is it that no such record of our own Peninsular and Waterloo horse-soldiers exist? Their deeds are certainly no less worthy of remembrance; and surely amongst the officers of the British Cavalry money enough might be subscribed to justify a publisher in undertaking such a task.

For the text of M. Masson not much can be said. It is an apotheosis of the Great Emperor and his Cavalry leaders, as its title implies, and in so far no fault need be found with it; one does not look for critical accuracy in a work of this kind, but it does not enhance the glory of the French Army to vilify and disparage its enemies, and in any case such rabid and childish abuse as is contained in the following quotation, by its ignorant exaggeration, of necessity only excites derision and contempt for its perpetrator:—

“Les Cuirassiers sont morts, mais ils ont fait payer leur mort. Ils sont morts le sabre au poing, ivres de vaillance et d'enthousiasme, ayant aux lèvres leur cri de victoire, qui en ce jour même du suprême désastre faisait pâlir qui les tuait. Ils sont morts, face à l'Anglais, comme leurs ancêtres à Fontenoy, face à l'éternel ennemi qui, après avoir payé des rois pour les tuer, ne s'est démasqué à la fin que lorsqu'il les a cru trop las pour avoir de vigoureuses défenses et pour lui faire trop chèrement payer son triomphe; l'estocade suprême du matador au taureau qu'on a, des temps, affolé avec des valets et qui vient de lui-même se jeter à l'épée. Mais cela, à l'Anglais, coûta plus cher qu'il n'avait compté; les Cuirassiers mirent une surenchère; et pour les abattre, ce ne fut point l'Anglais qui en eut l'honneur, mais notre ancien allié, notre vieil ami, l'Écossais qui, dupé, payé et conquis, sert à l'Anglais à faire croire qu'il est un soldat. Et les Cuirassiers eurent au moins cette joie, eux les victorieux de toujours, de tomber encore dans l'illusion de la victoire, au milieu des soixante pièces de canon qu'ils avaient prises, sous le rouge claquant dans l'azur des drapeaux anglais qu'emportait Palan du 9^e et Gautier du 10^e, avant que Blücher qu'ils avaient manqué l'avant-veille, Blücher, blessé, pris sous son cheval mort, près duquel ils avaient passé sans le tuer—car les nôtres n'achèvent point ceux qui se disent blessés—répandit sur les champs assombris de Waterloo le lugubre essaim de ses cavaliers noirs, *reteneurs des morts et assassins des mourants.*”

Souvenirs Militaires d'un Officier du Premier Empire (1795-1832). By J. N. A. NOEL, Colonel d'Artillerie. Paris: Berger-Levrault et Cie., 1895. Price, 12s.

Colonel Noel is the grandson of the officer whose life is recorded in these pages. In his introduction he states that he has merely published them, and not edited them in any way. They are therefore the first-hand evidence of an actor in the great events of the beginning of the century, written down, as the internal evidence of the book itself shows, whilst the scenes were still fresh in the author's memory. For the first ten years of his service he was principally employed away from the decisive theatres of war, and his pages shed some light on events not elsewhere recorded. In 1809 he was moved up to the Grand Army, took part in the battle of Wagram, in the following year was sent into Portugal and was present at Busaco, the advance to and retreat from the lines of Torres-Vedras, the battle of Fuentes d'Onore and many minor engagements. In 1812 he went into Russia but did not go beyond Kovno, where he met the wreck of the Grand Army in retreat. Subsequently he had his full share of all the fighting and privations that fell to the lot of the French Army, up to the capitulation of Paris in March, 1814. Considering his opportunities, he makes but little of them; but on the other hand, what he does write is temperate in tone and judgment, and may be usefully employed to correct the somewhat florid accounts of other writers, who need not be specified in detail.

Mittheilungen aus dem Archiv des Königl. Kriegs Ministerium's. Part III
Berlin: Mittler, 1895. Price, 3s. 6d.

The special attention of all officers interested in the history of the Prussian Army is called to the series of papers from the archives of the War Ministry now being issued. As no previous notice of these papers has as yet appeared in this Journal, the contents of the first three parts are here recapitulated: Part I.—Two

Army lists of the Prussian Army, 1713 and 1740, with notes and comments by Frederick the Great. Part II.—Notes on the campaign of 1809. Two memoirs by Clausewitz, 1830-1. Statistical notes on the Army of King Frederick William the First. A proposed drill book for the Army of King Frederick the First, 1707, with notes by the King. Memoir by General von Möllendorf on the "Canton" system of recruiting, with comments by the Duke of Brunswick. The Army in 1751. The history of the campaign of 1815, from General Müffling's unpublished papers. He warmly praises the cold-blooded tenacity and discipline of the British troops, "No other army in Europe can compare with it." Part III.—Five letters of Scharnhorst's to Prince August of Prussia. Reports on the action of the Prussian Guard Infantry Brigade in the battle before Paris on the 30th March, 1814. The re-organisation of the Prussian Army in 1787. The Prussian Infantry in 1726. The Prussian Cavalry in 1717-1725. Notes on the re-organisation of 1806.

Das Infanterie Regiment Graf Taubentzien von Wittenberg (3. Brandenburgisches)
No. 20. 2nd edition, 1895. Berlin: Mittler, Price, 9s.

The 20th Prussian Infantry had, like all the regiments of the 3rd Corps, something more than their share of hard fighting in the 1870 campaign. For English readers the chief value of this history lies in the account of the battle of Vionville, in which the regiment played a most prominent part, and in the numerous personal anecdotes of men and officers, which together give an insight into the spirit of the army of the utmost value to the tactical student. It will be remembered that in the attack on Vionville and Flavigny, the most extraordinary intermixture of the companies took place, and considerable light is shed on this point, for the 20th formed the second line of the brigade in which the confusion occurred.

Received too late for review:—

Breeding Racehorses by the Figure System. Compiled by the late C. BRUCE LOWE; edited by WILLIAM ALLISON. With numerous illustrations of celebrated horses (from photographs). London: Horace Cox, Field Office, 1895. Price, 31s. 6d.

The China-Japan War. By VLADIMIR, lately of the *** Diplomatic Service. With maps and illustrations. London: Sampson, Low, 1896. Price, 16s.

My Experiences in the Manipur and Naga Hills. By the late Major-General Sir JAMES JOHNSTONE, K.C.S.I. London: Sampson, Low, 1896. Price, 16s.

With H.M. 9th Lancers during the Indian Mutiny. Letters by the late Brevet-Major O. H. ST. G. ANSON, edited by his son. London: Allen and Co., 1896. Price, 7s. 6d.

Die Entscheidungskämpfe des Generals von Werder in Januar, 1871. By KUNZ, Major a.D. Berlin: Mittler, 1895.

L'Épopée de Waterloo: Narration nouvelle des Cent-Jours de 1815. By GEORGES BARRAL. Paris: Ernest Flammarion, 1895. Price, 6s.

Written in much the same spirit as "Les Cavaliers de Napoléon," noticed above.

Psychologie des Foules. By GUSTAVE LE BON. Paris: Alcan, 108n, Boulevard St. Germain, 1895. Price, 2s. 6d.

RECENT ADDITIONS TO THE MUSEUM.

TWO JEWELLED MYSORE SABRES, said to have belonged to Hyder Ali and Tippoo Sahib.

Lent by KENNETH H. CORNISH, Esq.

PAIR OF SILVER ICE PAILS, presented to Lord Nelson after the battle of Copenhagen; also

COMBINED GOLD KNIFE AND FORK, used by Lord Nelson after the loss of his arm.

Presented by J. A. MULLENS, Esq.

CHAIR, which belonged to Napoleon I. at St. Helena.

Presented by C. H. PRICE, Esq.

WATERLOO MEDAL of Sergeant M. Colgan, 18th Regiment Hussars.

Presented by C. B. HARRIS, Esq.

RING, taken off the finger of Tippoo Sahib, Sultan of Mysore, after his death at Seringapatam, in 1799, by Lieut.-Colonel the Hon. A. Wellesley, afterwards Duke of Wellington; also

SWORDS, MEDALS, DECORATIONS, and ORDERS of Field-Marshal Lord Raglan, Commander-in-Chief of the British Army in the Crimea; with those of the second Lord Raglan, and Major Fitzroy Somerset.

Lent by Lieut.-Colonel LORD RAGLAN, Royal Monmouthshire Militia.

COLOURS OF THE SIRMoor LIGHT INFANTRY, now the 2nd (Prince of Wales' Own) Goorkhas, carried during the Campaign in the Sutlej; also

COLOURS OF THE SIRMoor LIGHT INFANTRY, now the 2nd (Prince of Wales' Own) Goorkhas, carried during the Indian Mutiny.

Presented by General Sir CHARLES REID, G.C.B.

OFFICER'S POUCH BELT, AND SILVER FORK from Mess of, the late 5th or Rifle Battalion 60th (Royal American) Light Infantry; also

PENINSULAR WAR MEDAL WITH SIX CLASPS of the late Lieutenant Augustine F. Evans, of the late 5th or Rifle Battalion 60th (Royal American) Light Infantry.

Presented by Major AUGUSTINE EVANS, late R.M.L.I.

FIELD-OFFICER'S GOLD MEDAL FOR THE PENINSULA, awarded to the late Lieut.-Colonel Donald McNeill, 91st (Argyllshire) Highlanders.

Lent by Major-General Sir JOHN C. MCNEILL, V.C., K.C.B., etc.

STONE SHOT, dug up at the Moorish Castle, near the Mosque at Gibraltar, supposed to have been fired during the Siege.

Presented by Mr. T. E. SIMPSON, late Corporal The Black Watch.

R. H.

